SEQUENCE LISTING

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MATSUMOTO, TATSUMI

<120> PREVENTIVE/REMEDY FOR RESPIRATORY DISEASES

<130> 66314(46342)

<140> 10/594,266
<141> 2007-03-21

<150> PCT/JP2005/006444
<151> 2005-03-25

<150> JP 2004-092064
<151> 2004-03-26

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<170> PatentIn version 3.5

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Gln Leu Phe Leu Gln Pro Leu Trp Asp His Leu Arg Ser Trp Glu Ala
            20                  25                  30

Leu Leu Gln Ser Pro Phe Phe Pro Val Ile Phe Ser Ile Thr Thr Tyr
        35                  40                  45

Val Gly Phe Cys Leu Pro Phe Val Val Leu Asp Ile Leu Cys Ser Trp
    50                  55                  60

Val Pro Ala Leu Arg Arg Tyr Lys Ile His Pro Asp Phe Ser Pro Ser
65                  70                  75                  80

Ala Gln Gln Leu Leu Pro Cys Leu Gly Gln Thr Leu Tyr Gln His Val
                85                  90                  95

Met Phe Val Phe Pro Val Thr Leu Leu His Trp Ala Arg Ser Pro Ala
            100                 105                 110

Leu Leu Pro His Glu Ala Pro Glu Leu Leu Leu Leu Leu His His Ile
        115                 120                 125

Leu Phe Cys Leu Leu Leu Phe Asp Met Glu Phe Phe Val Trp His Leu
    130                 135                 140

Leu His His Lys Val Pro Trp Leu Tyr Arg Thr Phe His Lys Val His
145                 150                 155                 160

His Gln Asn Ser Ser Ser Phe Ala Leu Ala Thr Gln Tyr Met Ser Val
                165                 170                 175

Trp Glu Leu Phe Ser Leu Gly Phe Phe Asp Met Met Asn Val Thr Leu
            180                 185                 190
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Leu Gly Cys His Pro Leu Thr Thr Leu Thr Phe His Val Val Asn Ile
195 200 205

Trp Leu Ser Val Glu Asp His Ser Gly Tyr Asn Phe Pro Trp Ser Thr
210 215 220

His Arg Leu Val Pro Phe Gly Trp Tyr Gly Gly Val Val His His Asp
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Leu His His Ser His Phe Asn Cys Asn Phe Ala Pro Tyr Phe Thr His
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Trp Asp Lys Ile Leu Gly Thr Leu Arg Thr Ala Ser Val Pro Ala Arg
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Met Pro Gly Gln Glu Leu Arg Thr Leu Asn Gly Ser Gln Met Leu Leu
1               5                  10                  15

Val Leu Leu Val Leu Ser Trp Leu Pro His Gly Gly Ala Leu Ser Leu
            20                  25                  30

Ala Glu Ala Ser Arg Ala Ser Phe Pro Gly Pro Ser Glu Leu His Ser
        35                  40                  45

Glu Asp Ser Arg Phe Arg Glu Leu Arg Lys Arg Tyr Glu Asp Leu Leu
    50                  55                  60

Thr Arg Leu Arg Ala Asn Gln Ser Trp Glu Asp Ser Asn Thr Asp Leu
65                  70                  75                  80

Val Pro Ala Pro Ala Val Arg Ile Leu Thr Pro Glu Val Arg Leu Gly
                85                  90                  95

Ser Gly Gly His Leu His Leu Arg Ile Ser Arg Ala Ala Leu Pro Glu
            100                 105                 110

Gly Leu Pro Glu Ala Ser Arg Leu His Arg Ala Leu Phe Arg Leu Ser
        115                 120                 125

Pro Thr Ala Ser Arg Ser Trp Asp Val Thr Arg Pro Leu Arg Arg Gln
    130                 135                 140

Leu Ser Leu Ala Arg Pro Gln Ala Pro Ala Leu His Leu Arg Leu Ser
145                 150                 155                 160

Pro Pro Pro Ser Gln Ser Asp Gln Leu Leu Ala Glu Ser Ser Ser Ala
                165                 170                 175

Arg Pro Gln Leu Glu Leu His Leu Arg Pro Gln Ala Ala Arg Gly Arg
            180                 185                 190

Arg Arg Ala Arg Ala Arg Asn Gly Asp His Cys Pro Leu Gly Pro Gly
        195                 200                 205
```

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Arg Cys Cys Arg Leu His Thr Val Arg Ala Ser Leu Glu Asp Leu Gly
    210                 215                 220

Trp Ala Asp Trp Val Leu Ser Pro Arg Glu Val Gln Val Thr Met Cys
225                 230                 235                 240

Ile Gly Ala Cys Pro Ser Gln Phe Arg Ala Ala Asn Met His Ala Gln
                245                 250                 255

Ile Lys Thr Ser Leu His Arg Leu Lys Pro Asp Thr Val Pro Ala Pro
            260                 265                 270

Cys Cys Val Pro Ala Ser Tyr Asn Pro Met Val Leu Ile Gln Lys Thr
        275                 280                 285

Asp Thr Gly Val Ser Leu Gln Thr Tyr Asp Asp Leu Leu Ala Lys Asp
    290                 295                 300

Cys His Cys Ile
305
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cagagcttcc tgctcaagtg cttagagcaa gtgaggaaga tccagggcga tggcgcagcg      180

ctccaggaga agctggtgag tgagtgtgcc acctacaagc tgtgccaccc cgaggagctg      240

gtgctgctcg gacactctct gggcatcccc tgggctcccc tgagcagctg ccccagccag      300

gccctgcagc tggcaggctg cttgagccaa ctccatagcg gccttttcct ctaccagggg      360

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<210> 6
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<212> PRT
<213> Homo sapiens

<400> 6

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Met Ala Gly Pro Ala Thr Gln Ser Pro Met Lys Leu Met Ala Leu Gln
1               5                  10                  15

Leu Leu Leu Trp His Ser Ala Leu Trp Thr Val Gln Glu Ala Thr Pro
            20                  25                  30

Leu Gly Pro Ala Ser Ser Leu Pro Gln Ser Phe Leu Leu Lys Cys Leu
        35                  40                  45

Glu Gln Val Arg Lys Ile Gln Gly Asp Gly Ala Ala Leu Gln Glu Lys
    50                  55                  60

Leu Val Ser Glu Cys Ala Thr Tyr Lys Leu Cys His Pro Glu Glu Leu
65                  70                  75                  80

Val Leu Leu Gly His Ser Leu Gly Ile Pro Trp Ala Pro Leu Ser Ser
                85                  90                  95

Cys Pro Ser Gln Ala Leu Gln Leu Ala Gly Cys Leu Ser Gln Leu His
            100                 105                 110

Ser Gly Leu Phe Leu Tyr Gln Gly Leu Leu Gln Ala Leu Glu Gly Ile
        115                 120                 125

Ser Pro Glu Leu Gly Pro Thr Leu Asp Thr Leu Gln Leu Asp Val Ala
    130                 135                 140

Asp Phe Ala Thr Thr Ile Trp Gln Gln Met Glu Glu Leu Gly Met Ala
145                 150                 155                 160

Pro Ala Leu Gln Pro Thr Gln Gly Ala Met Pro Ala Phe Ala Ser Ala
                165                 170                 175

Phe Gln Arg Arg Ala Gly Gly Val Leu Val Ala Ser His Leu Gln Ser
            180                 185                 190

Phe Leu Glu Val Ser Tyr Arg Val Leu Arg His Leu Ala Gln Pro
        195                 200                 205
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<210> 7
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<212> DNA
<213> Homo sapiens

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tgctacagcg actcggatgc agtattacta tgttttgaca tcagccgtcc agagacagtg 300

gacagcgcac tcaagaagtg gaggacagaa atcctagatt attgtcccag cacccgcgtt 360

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caccagaagc aggcgcccat ctcctatgag cagggttgtg caatagcaaa gcagctgggt 480

gcagaaatct acctggaagg ctcagctttc acctcagaaa agagcatcca cagcatcttt 540

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ttcaagaagg aaaaggccaa aagctgttcc attatg 696

<210> 8
<211> 232
<212> PRT
<213> Homo sapiens

<400> 8
Met Lys Glu Arg Arg Ala Pro Gln Pro Val Val Ala Arg Cys Lys Leu
1 5 10 15

Val Leu Val Gly Asp Val Gln Cys Gly Lys Thr Ala Met Leu Gln Val
20 25 30

Leu Ala Lys Asp Cys Tyr Pro Glu Thr Tyr Val Pro Thr Val Phe Glu
35 40 45

Asn Tyr Thr Ala Cys Leu Glu Thr Glu Glu Gln Arg Val Glu Leu Ser
50 55 60

Leu Trp Asp Thr Ser Gly Ser Pro Tyr Tyr Asp Asn Val Arg Pro Leu
65 70 75 80

```
Cys Tyr Ser Asp Ser Asp Ala Val Leu Leu Cys Phe Asp Ile Ser Arg
                85                  90                  95

Pro Glu Thr Val Asp Ser Ala Leu Lys Lys Trp Arg Thr Glu Ile Leu
            100                 105                 110

Asp Tyr Cys Pro Ser Thr Arg Val Leu Leu Ile Gly Cys Lys Thr Asp
        115                 120                 125

Leu Arg Thr Asp Leu Ser Thr Leu Met Glu Leu Ser His Gln Lys Gln
    130                 135                 140

Ala Pro Ile Ser Tyr Glu Gln Gly Cys Ala Ile Ala Lys Gln Leu Gly
145                 150                 155                 160

Ala Glu Ile Tyr Leu Glu Gly Ser Ala Phe Thr Ser Glu Lys Ser Ile
                165                 170                 175

His Ser Ile Phe Arg Thr Ala Ser Met Leu Cys Leu Asn Lys Pro Ser
            180                 185                 190

Pro Leu Pro Gln Lys Ser Pro Val Arg Ser Leu Ser Lys Arg Leu Leu
        195                 200                 205

His Leu Pro Ser Arg Ser Glu Leu Ile Ser Ser Thr Phe Lys Lys Glu
    210                 215                 220

Lys Ala Lys Ser Cys Ser Ile Met
225                 230
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<210> 9
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<212> DNA
<213> Homo sapiens

<400> 9

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gtgcgtgagt accgggagaa ggtggagact gagctccagg gcgtgtgcga caccgtgctg     300

ggcctgctgg acagccacct catcaaggag gccggggacg ccgagagccg ggtcttctac     360
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tacgagatcg ccaacagccc cgaggaggcc atctctctgg ccaagaccac tttcgacgag 600

gccatggctg atctgcacac cctcagcgag gactcctaca aagacagcac cctcatcatg 660

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<212> PRT
<213> Homo sapiens

<400> 10

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Glu Arg Tyr Glu Asp Met Ala Ala Phe Met Lys Gly Ala Val Glu Lys
            20                  25                  30

Gly Glu Glu Leu Ser Cys Glu Glu Arg Asn Leu Leu Ser Val Ala Tyr
        35                  40                  45

Lys Asn Val Val Gly Gly Gln Arg Ala Ala Trp Arg Val Leu Ser Ser
    50                  55                  60

Ile Glu Gln Lys Ser Asn Glu Glu Gly Ser Glu Glu Lys Gly Pro Glu
65                  70                  75                  80

Val Arg Glu Tyr Arg Glu Lys Val Glu Thr Glu Leu Gln Gly Val Cys
                85                  90                  95

Asp Thr Val Leu Gly Leu Leu Asp Ser His Leu Ile Lys Glu Ala Gly
            100                 105                 110

Asp Ala Glu Ser Arg Val Phe Tyr Leu Lys Met Lys Gly Asp Tyr Tyr
        115                 120                 125

Arg Tyr Leu Ala Glu Val Ala Thr Gly Asp Asp Lys Lys Arg Ile Ile
    130                 135                 140
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Asp Ser Ala Arg Ser Ala Tyr Gln Glu Ala Met Asp Ile Ser Lys Lys
145 150 155 160

Glu Met Pro Pro Thr Asn Pro Ile Arg Leu Gly Leu Ala Leu Asn Phe
165 170 175

Ser Val Phe His Tyr Glu Ile Ala Asn Ser Pro Glu Glu Ala Ile Ser
180 185 190

Leu Ala Lys Thr Thr Phe Asp Glu Ala Met Ala Asp Leu His Thr Leu
195 200 205

Ser Glu Asp Ser Tyr Lys Asp Ser Thr Leu Ile Met Gln Leu Leu Arg
210 215 220

Asp Asn Leu Thr Leu Trp Thr Ala Asp Asn Ala Gly Glu Glu Gly Gly
225 230 235 240

Glu Ala Pro Gln Glu Pro Gln Ser
245

<210> 11
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<213> Homo sapiens

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gacgcccccc tgcactctgt cgggtacaca accctcgtgg ggaataacca cgagtcctgg 420

ggctgggact tggggcgcaa ccggctctac cacgatggca agaaccagcc aagcaaaaca 480

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ctggacatgg acgacgggac tctgagcttc attgtggatg gacagtacat gggagtggct 600

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gagatccgaa tgcgctactt gaacggactc gatcccgagc cgctgccgct catggatttg 720

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<212> PRT
<213> Homo sapiens

<400> 12

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Pro Thr Tyr Arg Pro Leu Lys Gln Glu Leu Gln Gly Leu Asp Tyr Cys
            20                  25                  30

Lys Pro Thr Arg Leu Asp Leu Leu Leu Asp Met Pro Pro Val Ser Tyr
        35                  40                  45

Asp Val Gln Leu Leu His Ser Trp Asn Asn Asn Asp Arg Ser Leu Asn
    50                  55                  60

Val Phe Val Lys Glu Asp Asp Lys Leu Ile Phe His Arg His Pro Val
65                  70                  75                  80

Ala Gln Ser Thr Asp Ala Ile Arg Gly Lys Val Gly Tyr Thr Arg Gly
                85                  90                  95

Leu His Val Trp Gln Ile Thr Trp Ala Met Arg Gln Arg Gly Thr His
            100                 105                 110

Ala Val Val Gly Val Ala Thr Ala Asp Ala Pro Leu His Ser Val Gly
        115                 120                 125

Tyr Thr Thr Leu Val Gly Asn Asn His Glu Ser Trp Gly Trp Asp Leu
    130                 135                 140

Gly Arg Asn Arg Leu Tyr His Asp Gly Lys Asn Gln Pro Ser Lys Thr
145                 150                 155                 160

Tyr Pro Ala Phe Leu Glu Pro Asp Glu Thr Phe Ile Val Pro Asp Ser
                165                 170                 175

Phe Leu Val Ala Leu Asp Met Asp Asp Gly Thr Leu Ser Phe Ile Val
            180                 185                 190
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Asp Gly Gln Tyr Met Gly Val Ala Phe Arg Gly Leu Lys Gly Lys Lys
195 200 205

Leu Tyr Pro Val Val Ser Ala Val Trp Gly His Cys Glu Ile Arg Met
210 215 220

Arg Tyr Leu Asn Gly Leu Asp Pro Glu Pro Leu Pro Leu Met Asp Leu
225 230 235 240

Cys Arg Arg Ser Val Arg Leu Ala Leu Gly Arg Glu Arg Leu Gly Glu
245 250 255

Ile His Thr Leu Pro Leu Pro Ala Ser Leu Lys Ala Tyr Leu Leu Tyr
260 265 270

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<210> 13
<211> 2370
<212> DNA
<213> Homo sapiens

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ggcaattgcc tcatgcatgc cacttctcag tacatgtggg gcgttcagga cacagacttg 360

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<210> 14
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<212> PRT
<213> Homo sapiens

<400> 14

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Lys Ala Val Lys Ile Arg Glu Arg Thr Pro Glu Asp Ile Phe Lys Pro
            20                  25                  30

Thr Asn Gly Ile Ile His His Phe Lys Thr Met His Arg Tyr Thr Leu
        35                  40                  45

Glu Met Phe Arg Thr Cys Gln Phe Cys Pro Gln Phe Arg Glu Ile Ile
    50                  55                  60

His Lys Ala Leu Ile Asp Arg Asn Ile Gln Ala Thr Leu Glu Ser Gln
65                  70                  75                  80

Lys Lys Leu Asn Trp Cys Arg Glu Val Arg Lys Leu Val Ala Leu Lys
                85                  90                  95

Thr Asn Gly Asp Gly Asn Cys Leu Met His Ala Thr Ser Gln Tyr Met
            100                 105                 110

Trp Gly Val Gln Asp Thr Asp Leu Val Leu Arg Lys Ala Leu Phe Ser
        115                 120                 125

Thr Leu Lys Glu Thr Asp Thr Arg Asn Phe Lys Phe Arg Trp Gln Leu
    130                 135                 140

Glu Ser Leu Lys Ser Gln Glu Phe Val Glu Thr Gly Leu Cys Tyr Asp
145                 150                 155                 160

Thr Arg Asn Trp Asn Asp Glu Trp Asp Asn Leu Ile Lys Met Ala Ser
                165                 170                 175

Thr Asp Thr Pro Met Ala Arg Ser Gly Leu Gln Tyr Asn Ser Leu Glu
            180                 185                 190

Glu Ile His Ile Phe Val Leu Cys Asn Ile Leu Arg Arg Pro Ile Ile
        195                 200                 205

Val Ile Ser Asp Lys Met Leu Arg Ser Leu Glu Ser Gly Ser Asn Phe
    210                 215                 220
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Ala Pro Leu Lys Val Gly Gly Ile Tyr Leu Pro Leu His Trp Pro Ala
225                 230                 235                 240

Gln Glu Cys Tyr Arg Tyr Pro Ile Val Leu Gly Tyr Asp Ser His His
                245                 250                 255

Phe Val Pro Leu Val Thr Leu Lys Asp Ser Gly Pro Glu Ile Arg Ala
            260                 265                 270

Val Pro Leu Val Asn Arg Asp Arg Gly Arg Phe Glu Asp Leu Lys Val
        275                 280                 285

His Phe Leu Thr Asp Pro Glu Asn Glu Met Lys Glu Lys Leu Leu Lys
    290                 295                 300

Glu Tyr Leu Met Val Ile Glu Ile Pro Val Gln Gly Trp Asp His Gly
305                 310                 315                 320

Thr Thr His Leu Ile Asn Ala Ala Lys Leu Asp Glu Ala Asn Leu Pro
                325                 330                 335

Lys Glu Ile Asn Leu Val Asp Asp Tyr Phe Glu Leu Val Gln His Glu
            340                 345                 350

Tyr Lys Lys Trp Gln Glu Asn Ser Glu Gln Gly Arg Arg Glu Gly His
        355                 360                 365

Ala Gln Asn Pro Met Glu Pro Ser Val Pro Gln Leu Ser Leu Met Asp
    370                 375                 380

Val Lys Cys Glu Thr Pro Asn Cys Pro Phe Phe Met Ser Val Asn Thr
385                 390                 395                 400

Gln Pro Leu Cys His Glu Cys Ser Glu Arg Arg Gln Lys Asn Gln Asn
                405                 410                 415

Lys Leu Pro Lys Leu Asn Ser Lys Pro Gly Pro Glu Gly Leu Pro Gly
            420                 425                 430

Met Ala Leu Gly Ala Ser Arg Gly Glu Ala Tyr Glu Pro Leu Ala Trp
        435                 440                 445

Asn Pro Glu Glu Ser Thr Gly Gly Pro His Ser Ala Pro Pro Thr Ala
    450                 455                 460
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Pro Ser Pro Phe Leu Phe Ser Glu Thr Thr Ala Met Lys Cys Arg Ser
465                 470                 475                 480

Pro Gly Cys Pro Phe Thr Leu Asn Val Gln His Asn Gly Phe Cys Glu
                485                 490                 495

Arg Cys His Asn Ala Arg Gln Leu His Ala Ser His Ala Pro Asp His
            500                 505                 510

Thr Arg His Leu Asp Pro Gly Lys Cys Gln Ala Cys Leu Gln Asp Val
        515                 520                 525

Thr Arg Thr Phe Asn Gly Ile Cys Ser Thr Cys Phe Lys Arg Thr Thr
    530                 535                 540

Ala Glu Ala Ser Ser Ser Leu Ser Thr Ser Leu Pro Pro Ser Cys His
545                 550                 555                 560

Gln Arg Ser Lys Ser Asp Pro Ser Arg Leu Val Arg Ser Pro Ser Pro
                565                 570                 575

His Ser Cys His Arg Ala Gly Asn Asp Ala Pro Ala Gly Cys Leu Ser
            580                 585                 590

Gln Ala Ala Arg Thr Pro Gly Asp Arg Thr Gly Thr Ser Lys Cys Arg
        595                 600                 605

Lys Ala Gly Cys Val Tyr Phe Gly Thr Pro Glu Asn Lys Gly Phe Cys
    610                 615                 620

Thr Leu Cys Phe Ile Glu Tyr Arg Glu Asn Lys His Phe Ala Ala Ala
625                 630                 635                 640

Ser Gly Lys Val Ser Pro Thr Ala Ser Arg Phe Gln Asn Thr Ile Pro
                645                 650                 655

Cys Leu Gly Arg Glu Cys Gly Thr Leu Gly Ser Thr Met Phe Glu Gly
            660                 665                 670

Tyr Cys Gln Lys Cys Phe Ile Glu Ala Gln Asn Gln Arg Phe His Glu
        675                 680                 685
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Ala Lys Arg Thr Glu Glu Gln Leu Arg Ser Ser Gln Arg Arg Asp Val
690 695 700

Pro Arg Thr Thr Gln Ser Thr Ser Arg Pro Lys Cys Ala Arg Ala Ser
705 710 715 720

Cys Lys Asn Ile Leu Ala Cys Arg Ser Glu Glu Leu Cys Met Glu Cys
725 730 735

Gln His Pro Asn Gln Arg Met Gly Pro Gly Ala His Arg Gly Glu Pro
740 745 750

Ala Pro Glu Asp Pro Pro Lys Gln Arg Cys Arg Ala Pro Ala Cys Asp
755 760 765

His Phe Gly Asn Ala Lys Cys Asn Gly Tyr Cys Asn Glu Cys Phe Gln
770 775 780

Phe Lys Gln Met Tyr Gly
785 790

<210> 15
<211> 831
<212> DNA
<213> Homo sapiens

<400> 15
atgatcatct taatttactt atttctcttg ctatgggaag acactcaagg atggggattc 60

aaggatggaa tttttcataa ctccatatgg cttgaacgag cagccggtgt gtaccacaga 120

gaagcacggt ctggcaaata caagctcacc tacgcagaag ctaaggcggt gtgtgaattt 180

gaaggcggcc atctcgcaac ttacaagcag ctagaggcag ccagaaaaat tggatttcat 240

gtctgtgctg ctggatggat ggctaagggc agagttggat accccattgt gaagccaggg 300

cccaactgtg gatttggaaa aactggcatt attgattatg gaatccgtct caataggagt 360

gaaagatggg atgcctattg ctacaaccca cacgcaaagg agtgtggtgg cgtctttaca 420

gatccaaagc aaatttttaa atctccaggc ttcccaaatg agtacgaaga taaccaaatc 480

tgctactggc acattagact caagtatggt cagcgtattc acctgagttt tttagatttt 540

gaccttgaag atgacccagg ttgcttggct gattatgttg aaatatatga cagttacgat 600

gatgtccatg gctttgtggg aagatactgt ggagatgagc ttccagatga catcatcagt 660

acaggaaatg tcatgacctt gaagtttcta agtgatgctt cagtgacagc tggaggtttc 720

caaatcaaat atgttgcaat ggatcctgta tccaaatcca gtcaaggaaa aaatacaagt 780

actacttcta ctggaaataa aaacttttta gctggaagat ttagccactt a 831

<210> 16
<211> 277
<212> PRT
<213> Homo sapiens

<400> 16

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Met Ile Ile Leu Ile Tyr Leu Phe Leu Leu Leu Trp Glu Asp Thr Gln
1               5                  10                  15

Gly Trp Gly Phe Lys Asp Gly Ile Phe His Asn Ser Ile Trp Leu Glu
            20                  25                  30

Arg Ala Ala Gly Val Tyr His Arg Glu Ala Arg Ser Gly Lys Tyr Lys
        35                  40                  45

Leu Thr Tyr Ala Glu Ala Lys Ala Val Cys Glu Phe Glu Gly Gly His
    50                  55                  60

Leu Ala Thr Tyr Lys Gln Leu Glu Ala Ala Arg Lys Ile Gly Phe His
65                  70                  75                  80

Val Cys Ala Ala Gly Trp Met Ala Lys Gly Arg Val Gly Tyr Pro Ile
                85                  90                  95

Val Lys Pro Gly Pro Asn Cys Gly Phe Gly Lys Thr Gly Ile Ile Asp
            100                 105                 110

Tyr Gly Ile Arg Leu Asn Arg Ser Glu Arg Trp Asp Ala Tyr Cys Tyr
        115                 120                 125

Asn Pro His Ala Lys Glu Cys Gly Gly Val Phe Thr Asp Pro Lys Gln
    130                 135                 140

Ile Phe Lys Ser Pro Gly Phe Pro Asn Glu Tyr Glu Asp Asn Gln Ile
145                 150                 155                 160

Cys Tyr Trp His Ile Arg Leu Lys Tyr Gly Gln Arg Ile His Leu Ser
                165                 170                 175

Phe Leu Asp Phe Asp Leu Glu Asp Asp Pro Gly Cys Leu Ala Asp Tyr
            180                 185                 190
```

Val Glu Ile Tyr Asp Ser Tyr Asp Asp Val His Gly Phe Val Gly Arg
195 200 205

Tyr Cys Gly Asp Glu Leu Pro Asp Asp Ile Ile Ser Thr Gly Asn Val
210 215 220

Met Thr Leu Lys Phe Leu Ser Asp Ala Ser Val Thr Ala Gly Gly Phe
225 230 235 240

Gln Ile Lys Tyr Val Ala Met Asp Pro Val Ser Lys Ser Ser Gln Gly
245 250 255

Lys Asn Thr Ser Thr Thr Ser Thr Gly Asn Lys Asn Phe Leu Ala Gly
260 265 270

Arg Phe Ser His Leu
275

<210> 17
<211> 468
<212> DNA
<213> Homo sapiens

<400> 17
atgtgtcact ctcgcagctg ccacccgacc atgaccatcc tgcaggcccc gaccccggcc 60

ccctccacca tcccgggacc ccggcggggc tccggtcctg agatcttcac cttcgaccct 120

ctcccggagc ccgcagcggc ccctgccggg cgccccagcg cctctcgcgg gcaccgaaag 180

cgcagccgca gggttctcta ccctcgagtg gtccggcgcc agctgccagt cgaggaaccg 240

aacccagcca aaaggcttct ctttctgctg ctcaccatcg tcttctgcca gatcctgatg 300

gctgaagagg gtgtgccggc gcccctgcct ccagaggacg cccctaacgc cgcatccctg 360

gcgcccaccc ctgtgtcccc cgtcctcgag ccctttaatc tgacttcgga gccctcggac 420

tacgctctgg acctcagcac tttcctccag caacacccgg ccgccttc 468

<210> 18
<211> 156
<212> PRT
<213> Homo sapiens

<400> 18
Met Cys His Ser Arg Ser Cys His Pro Thr Met Thr Ile Leu Gln Ala
1 5 10 15

Pro Thr Pro Ala Pro Ser Thr Ile Pro Gly Pro Arg Arg Gly Ser Gly
20 25 30

Pro Glu Ile Phe Thr Phe Asp Pro Leu Pro Glu Pro Ala Ala Ala Pro
35 40 45

Ala Gly Arg Pro Ser Ala Ser Arg Gly His Arg Lys Arg Ser Arg Arg
50 55 60

Val Leu Tyr Pro Arg Val Val Arg Arg Gln Leu Pro Val Glu Glu Pro
65 70 75 80

Asn Pro Ala Lys Arg Leu Leu Phe Leu Leu Leu Thr Ile Val Phe Cys
85 90 95

Gln Ile Leu Met Ala Glu Glu Gly Val Pro Ala Pro Leu Pro Pro Glu
100 105 110

Asp Ala Pro Asn Ala Ala Ser Leu Ala Pro Thr Pro Val Ser Pro Val
115 120 125

Leu Glu Pro Phe Asn Leu Thr Ser Glu Pro Ser Asp Tyr Ala Leu Asp
130 135 140

Leu Ser Thr Phe Leu Gln Gln His Pro Ala Ala Phe
145 150 155

<210> 19
<211> 495
<212> DNA
<213> Homo sapiens

<400> 19
atgactttgg aggaattctc ggctggagag cagaagaccg aaaggatgga taaggtgggg 60

gatgccctgg aggaagtgct cagcaaagcc ctgagtcagc gcacgatcac tgtcggggtg 120

tacgaagcgg ccaagctgct caacgtcgac cccgataacg tggtgttgtg cctgctggcg 180

gcggacgagg acgacgacag agatgtggct ctgcagatcc acttcaccct gatccaggcg 240

ttttgctgcg agaacgacat caacatcctg cgcgtcagca acccgggccg gctggcggag 300

ctcctgctct tggagaccga cgctggcccc gcggcgagcg agggcgccga gcagcccccg 360

gacctgcact gcgtgctggt gacgaatcca cattcatctc aatggaagga tcctgcctta 420

agtcaactta tttgtttttg ccgggaaagt cgctacatgg atcaatgggt tccagtgatt 480

aatctccctg aacgg 495

<210> 20
<211> 165
<212> PRT
<213> Homo sapiens

<400> 20
Met Thr Leu Glu Glu Phe Ser Ala Gly Glu Gln Lys Thr Glu Arg Met
1 5 10 15

Asp Lys Val Gly Asp Ala Leu Glu Glu Val Leu Ser Lys Ala Leu Ser
20 25 30

Gln Arg Thr Ile Thr Val Gly Val Tyr Glu Ala Ala Lys Leu Leu Asn
35 40 45

Val Asp Pro Asp Asn Val Val Leu Cys Leu Leu Ala Ala Asp Glu Asp
50 55 60

Asp Asp Arg Asp Val Ala Leu Gln Ile His Phe Thr Leu Ile Gln Ala
65 70 75 80

Phe Cys Cys Glu Asn Asp Ile Asn Ile Leu Arg Val Ser Asn Pro Gly
85 90 95

Arg Leu Ala Glu Leu Leu Leu Leu Glu Thr Asp Ala Gly Pro Ala Ala
100 105 110

Ser Glu Gly Ala Glu Gln Pro Pro Asp Leu His Cys Val Leu Val Thr
115 120 125

Asn Pro His Ser Ser Gln Trp Lys Asp Pro Ala Leu Ser Gln Leu Ile
130 135 140

Cys Phe Cys Arg Glu Ser Arg Tyr Met Asp Gln Trp Val Pro Val Ile
145 150 155 160

Asn Leu Pro Glu Arg
165

<210> 21
<211> 480
<212> DNA
<213> Homo sapiens

<400> 21
atgacgctgg aagagctcgt ggcgtgcgac aacgcggcgc agaagatgca gacggtgacc 60

gccgcggtgg aggagctttt ggtggccgct cagcgccagg atcgcctcac agtgggggtg 120

tacgagtcgg ccaagttgat gaatgtggac ccagacagcg tggtcctctg cctcttggcc 180

attgacgagg aggaggagga tgacatcgcc ctgcaaatcc acttcacgct catccagtcc 240

ttctgctgtg acaacgacat caacatcgtg cgggtgtcgg gcatgcagcg cctggcgcag 300

ctcctgggag agccggccga gacccagggc accaccgagg cccgagacct gcattgtctc 360

ctggtcacga accctcacac ggacgcctgg aagagccacg gcttggtgga ggtggccagc 420

tactgcgaag aaagccgggg caacaaccag tgggtcccct acatctctct tcaggaacgc 480

<210> 22
<211> 160
<212> PRT
<213> Homo sapiens

<400> 22
Met Thr Leu Glu Glu Leu Val Ala Cys Asp Asn Ala Ala Gln Lys Met
1 5 10 15

Gln Thr Val Thr Ala Ala Val Glu Glu Leu Leu Val Ala Ala Gln Arg
20 25 30

Gln Asp Arg Leu Thr Val Gly Val Tyr Glu Ser Ala Lys Leu Met Asn
35 40 45

Val Asp Pro Asp Ser Val Val Leu Cys Leu Leu Ala Ile Asp Glu Glu
50 55 60

Glu Glu Asp Asp Ile Ala Leu Gln Ile His Phe Thr Leu Ile Gln Ser
65 70 75 80

Phe Cys Cys Asp Asn Asp Ile Asn Ile Val Arg Val Ser Gly Met Gln
85 90 95

Arg Leu Ala Gln Leu Leu Gly Glu Pro Ala Glu Thr Gln Gly Thr Thr
100 105 110

Glu Ala Arg Asp Leu His Cys Leu Leu Val Thr Asn Pro His Thr Asp
115 120 125

Ala Trp Lys Ser His Gly Leu Val Glu Val Ala Ser Tyr Cys Glu Glu
130 135 140

Ser Arg Gly Asn Asn Gln Trp Val Pro Tyr Ile Ser Leu Gln Glu Arg
145 150 155 160

<210> 23
<211> 531
<212> DNA
<213> Homo sapiens

<400> 23
atggaaatct gcagaggcct ccgcagtcac ctaatcactc tcctcctctt cctgttccat 60

tcagagacga tctgccgacc ctctgggaga aaatccagca agatgcaagc cttcagaatc 120

tgggatgtta accagaagac cttctatctg aggaacaacc aactagttgc tggatacttg 180

caaggaccaa atgtcaattt agaagaaaag atagatgtgg tacccattga gcctcatgct 240

ctgttcttgg gaatccatgg agggaagatg tgcctgtcct gtgtcaagtc tggtgatgag 300

accagactcc agctggaggc agttaacatc actgacctga gcgagaacag aaagcaggac 360

aagcgcttcg ccttcatccg ctcagacagc ggccccacca ccagttttga gtctgccgcc 420

tgccccggtt ggttcctctg cacagcgatg gaagctgacc agcccgtcag cctcaccaat 480

atgcctgacg aaggcgtcat ggtcaccaaa ttctacttcc aggaggacga g 531

<210> 24
<211> 177
<212> PRT
<213> Homo sapiens

<400> 24
Met Glu Ile Cys Arg Gly Leu Arg Ser His Leu Ile Thr Leu Leu Leu
1 5 10 15

Phe Leu Phe His Ser Glu Thr Ile Cys Arg Pro Ser Gly Arg Lys Ser
20 25 30

Ser Lys Met Gln Ala Phe Arg Ile Trp Asp Val Asn Gln Lys Thr Phe
35 40 45

Tyr Leu Arg Asn Asn Gln Leu Val Ala Gly Tyr Leu Gln Gly Pro Asn
50 55 60

Val Asn Leu Glu Glu Lys Ile Asp Val Val Pro Ile Glu Pro His Ala
65 70 75 80

Leu Phe Leu Gly Ile His Gly Gly Lys Met Cys Leu Ser Cys Val Lys
85 90 95

Ser Gly Asp Glu Thr Arg Leu Gln Leu Glu Ala Val Asn Ile Thr Asp
100 105 110

Leu Ser Glu Asn Arg Lys Gln Asp Lys Arg Phe Ala Phe Ile Arg Ser
115 120 125

Asp Ser Gly Pro Thr Thr Ser Phe Glu Ser Ala Ala Cys Pro Gly Trp
130 135 140

Phe Leu Cys Thr Ala Met Glu Ala Asp Gln Pro Val Ser Leu Thr Asn
145 150 155 160

Met Pro Asp Glu Gly Val Met Val Thr Lys Phe Tyr Phe Gln Glu Asp
165 170 175

Glu

<210> 25
<211> 594
<212> DNA
<213> Homo sapiens

<400> 25
atgaccctgc ggtgccttga gccctccggg aatggcgggg aagggacgcg gagccagtgg 60

gggaccgcgg ggtcggcgga ggagccatcc ccgcaggcgg cgcgtctggc gaaggccctg 120

cgggagctcg gtcagacagg atggtactgg ggaagtatga ctgttaatga agccaaagag 180

aaattaaaag aggcaccaga aggaactttc ttgattagag atagctcgca ttcagactac 240

ctactaacaa tatctgttaa aacatcagct ggaccaacta atcttcgaat cgaataccaa 300

gacggaaaat tcagattgga ctctatcata tgtgtcaaat ccaagcttaa acaatttgac 360

agtgtggttc atctgatcga ctactatgtt cagatgtgca aggataagcg gacaggtcca 420

gaagcccccc ggaacggcac tgttcacctt tatctgacca aaccgctcta cacgtcagca 480

ccatctctgc agcatctctg taggctcacc attaacaaat gtaccggtgc catctgggga 540

ctgcctttac caacaagact aaaagattac ttggaagaat ataaattcca ggta 594

<210> 26
<211> 198
<212> PRT
<213> Homo sapiens

<400> 26

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Met Thr Leu Arg Cys Leu Glu Pro Ser Gly Asn Gly Gly Glu Gly Thr
1               5                  10                  15

Arg Ser Gln Trp Gly Thr Ala Gly Ser Ala Glu Glu Pro Ser Pro Gln
            20                  25                  30

Ala Ala Arg Leu Ala Lys Ala Leu Arg Glu Leu Gly Gln Thr Gly Trp
        35                  40                  45

Tyr Trp Gly Ser Met Thr Val Asn Glu Ala Lys Glu Lys Leu Lys Glu
    50                  55                  60

Ala Pro Glu Gly Thr Phe Leu Ile Arg Asp Ser Ser His Ser Asp Tyr
65                  70                  75                  80

Leu Leu Thr Ile Ser Val Lys Thr Ser Ala Gly Pro Thr Asn Leu Arg
                85                  90                  95

Ile Glu Tyr Gln Asp Gly Lys Phe Arg Leu Asp Ser Ile Ile Cys Val
            100                 105                 110

Lys Ser Lys Leu Lys Gln Phe Asp Ser Val Val His Leu Ile Asp Tyr
        115                 120                 125

Tyr Val Gln Met Cys Lys Asp Lys Arg Thr Gly Pro Glu Ala Pro Arg
    130                 135                 140

Asn Gly Thr Val His Leu Tyr Leu Thr Lys Pro Leu Tyr Thr Ser Ala
145                 150                 155                 160

Pro Ser Leu Gln His Leu Cys Arg Leu Thr Ile Asn Lys Cys Thr Gly
                165                 170                 175

Ala Ile Trp Gly Leu Pro Leu Pro Thr Arg Leu Lys Asp Tyr Leu Glu
            180                 185                 190

Glu Tyr Lys Phe Gln Val
        195
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<210> 27
<211> 675
<212> DNA
<213> Homo sapiens

<400> 27
atggtcaccc acagcaagtt tcccgccgcc gggatgagcc gccccctgga caccagcctg 60

cgcctcaaga ccttcagctc caagagcgag taccagctgg tggtgaacgc agtgcgcaag 120

ctgcaggaga gcggcttcta ctggagcgca gtgaccggcg gcgaggcgaa cctgctgctc 180

agtgccgagc ccgccggcac ctttctgatc cgcgacagct cggaccagcg ccacttcttc 240

acgctcagcg tcaagaccca gtctgggacc aagaacctgc gcatccagtg tgaggggggc 300

agcttctctc tgcagagcga tccccggagc acgcagcccg tgccccgctt cgactgcgtg 360

ctcaagctgg tgtaccacta catgccgccc cctggagccc cctccttccc ctcgccacct 420

actgaaccct cctccgaggt gcccgagcag ccgtctgccc agccactccc tgggagtccc 480

cccagaagag cctattacat ctactccggg ggcgagaaga tccccctggt gttgagccgg 540

cccctctcct ccaacgtggc cactcttcag catctctgtc ggaagaccgt caacggccac 600

ctggactcct atgagaaagt cacccagctg ccggggccca ttcgggagtt cctggaccag 660

tacgatgccc cgctt 675

<210> 28
<211> 225
<212> PRT
<213> Homo sapiens

<400> 28
Met Val Thr His Ser Lys Phe Pro Ala Ala Gly Met Ser Arg Pro Leu
1 5 10 15

Asp Thr Ser Leu Arg Leu Lys Thr Phe Ser Ser Lys Ser Glu Tyr Gln
20 25 30

Leu Val Val Asn Ala Val Arg Lys Leu Gln Glu Ser Gly Phe Tyr Trp
35 40 45

Ser Ala Val Thr Gly Gly Glu Ala Asn Leu Leu Leu Ser Ala Glu Pro
50 55 60

Ala Gly Thr Phe Leu Ile Arg Asp Ser Ser Asp Gln Arg His Phe Phe
65 70 75 80

Thr Leu Ser Val Lys Thr Gln Ser Gly Thr Lys Asn Leu Arg Ile Gln
85 90 95

Cys Glu Gly Gly Ser Phe Ser Leu Gln Ser Asp Pro Arg Ser Thr Gln
100 105 110

Pro Val Pro Arg Phe Asp Cys Val Leu Lys Leu Val Tyr His Tyr Met
115 120 125

Pro Pro Pro Gly Ala Pro Ser Phe Pro Ser Pro Pro Thr Glu Pro Ser
130 135 140

Ser Glu Val Pro Glu Gln Pro Ser Ala Gln Pro Leu Pro Gly Ser Pro
145 150 155 160

Pro Arg Arg Ala Tyr Tyr Ile Tyr Ser Gly Gly Glu Lys Ile Pro Leu
165 170 175

Val Leu Ser Arg Pro Leu Ser Ser Asn Val Ala Thr Leu Gln His Leu
180 185 190

Cys Arg Lys Thr Val Asn Gly His Leu Asp Ser Tyr Glu Lys Val Thr
195 200 205

Gln Leu Pro Gly Pro Ile Arg Glu Phe Leu Asp Gln Tyr Asp Ala Pro
210 215 220

Leu
225

<210> 29
<211> 1524
<212> DNA
<213> Homo sapiens

<400> 29
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ctggggcttg cagaggtggc gcccgtggac tacctgtcac aatatgggta cctacagaag 120

cctctagaag gatctaataa cttcaagcca gaagatatca ccgaggctct gagagctttt 180

caggaagcat ctgaacttcc agtctcaggt cagctggatg atgccacaag ggcccgcatg 240

aggcagcctc gttgtggcct agaggatccc ttcaaccaga agacccttaa atacctgttg 300

ctgggccgct ggagaaagaa gcacctgact ttccgcatct tgaacctgcc ctccaccctt 360

ccaccccaca cagcccgggc agccctgcgt caagccttcc aggactggag caatgtggct 420

cccttgacct tccaagaggt gcaggctggt gcggctgaca tccgcctctc cttccatggc 480

cgccaaagct cgtactgttc caatactttt gatgggcctg ggagagtcct ggcccatgcc 540

gacatcccag agctgggcag tgtgcacttc gacgaagacg agttctggac tgaggggacc 600

taccgtgggg tgaacctgcg catcattgca gcccatgaag tgggccatgc tctggggctt 660

gggcactccc gatattccca ggccctcatg gccccagtct acgagggcta ccggccccac 720

tttaagctgc acccagatga tgtggcaggg atccaggctc tctatggcaa gaagagtcca 780

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ggcccccttgt tccgagtgtc tgcccctttgg gaggggctcc ccggaaacct ggatgctgct 1020

gtctactcgc ctcgaacaca atggattcac ttctttaagg gagacaaggt gtggcgctac 1080

attaatttca agatgtctcc tggcttcccc aagaagctga atagggtaga acctaacctg 1140

gatgcagctc tctattggcc tctcaaccaa aaggtgttcc tctttaaggg ctccgggtac 1200

tggcagtggg acgagctagc ccgaactgac ttcagcagct accccaaacc aatcaagggt 1260

ttgtttacgg gagtgccaaa ccagccctcg gctgctatga gttggcaaga tggccgagtc 1320

tacttcttca agggcaaagt ctactggcgc ctcaaccagc agcttcgagt agagaaaggc 1380

tatcccagaa atatttccca caactggatg cactgtcgtc cccggactat agacactacc 1440

ccatcaggtg ggaataccac tccctcaggt acgggcataa ccttggatac cactctctca 1500

gccacagaaa ccacgtttga atac 1524

<210> 30
<211> 508
<212> PRT
<213> Homo sapiens

<400> 30

Met	Asn	Cys	Gln	Gln	Leu	Trp	Leu	Gly	Phe	Leu	Leu	Pro	Met	Thr	Val
1				5					10					15	

Ser	Gly	Arg	Val	Leu	Gly	Leu	Ala	Glu	Val	Ala	Pro	Val	Asp	Tyr	Leu
			20					25					30		

Ser	Gln	Tyr	Gly	Tyr	Leu	Gln	Lys	Pro	Leu	Glu	Gly	Ser	Asn	Asn	Phe
		35					40					45			

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Lys Pro Glu Asp Ile Thr Glu Ala Leu Arg Ala Phe Gln Glu Ala Ser
    50                  55                  60

Glu Leu Pro Val Ser Gly Gln Leu Asp Asp Ala Thr Arg Ala Arg Met
65                  70                  75                  80

Arg Gln Pro Arg Cys Gly Leu Glu Asp Pro Phe Asn Gln Lys Thr Leu
                85                  90                  95

Lys Tyr Leu Leu Leu Gly Arg Trp Arg Lys Lys His Leu Thr Phe Arg
            100                 105                 110

Ile Leu Asn Leu Pro Ser Thr Leu Pro Pro His Thr Ala Arg Ala Ala
        115                 120                 125

Leu Arg Gln Ala Phe Gln Asp Trp Ser Asn Val Ala Pro Leu Thr Phe
    130                 135                 140

Gln Glu Val Gln Ala Gly Ala Ala Asp Ile Arg Leu Ser Phe His Gly
145                 150                 155                 160

Arg Gln Ser Ser Tyr Cys Ser Asn Thr Phe Asp Gly Pro Gly Arg Val
                165                 170                 175

Leu Ala His Ala Asp Ile Pro Glu Leu Gly Ser Val His Phe Asp Glu
            180                 185                 190

Asp Glu Phe Trp Thr Glu Gly Thr Tyr Arg Gly Val Asn Leu Arg Ile
        195                 200                 205

Ile Ala Ala His Glu Val Gly His Ala Leu Gly Leu Gly His Ser Arg
    210                 215                 220

Tyr Ser Gln Ala Leu Met Ala Pro Val Tyr Glu Gly Tyr Arg Pro His
225                 230                 235                 240

Phe Lys Leu His Pro Asp Asp Val Ala Gly Ile Gln Ala Leu Tyr Gly
                245                 250                 255

Lys Lys Ser Pro Val Ile Arg Asp Glu Glu Glu Glu Glu Thr Glu Leu
            260                 265                 270
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Pro Thr Val Pro Pro Val Pro Thr Glu Pro Ser Pro Met Pro Asp Pro
        275                 280                 285

Cys Ser Ser Glu Leu Asp Ala Met Met Leu Gly Pro Arg Gly Lys Thr
    290                 295                 300

Tyr Ala Phe Lys Gly Asp Tyr Val Trp Thr Val Ser Asp Ser Gly Pro
305                 310                 315                 320

Gly Pro Leu Phe Arg Val Ser Ala Leu Trp Glu Gly Leu Pro Gly Asn
                325                 330                 335

Leu Asp Ala Ala Val Tyr Ser Pro Arg Thr Gln Trp Ile His Phe Phe
            340                 345                 350

Lys Gly Asp Lys Val Trp Arg Tyr Ile Asn Phe Lys Met Ser Pro Gly
        355                 360                 365

Phe Pro Lys Lys Leu Asn Arg Val Glu Pro Asn Leu Asp Ala Ala Leu
    370                 375                 380

Tyr Trp Pro Leu Asn Gln Lys Val Phe Leu Phe Lys Gly Ser Gly Tyr
385                 390                 395                 400

Trp Gln Trp Asp Glu Leu Ala Arg Thr Asp Phe Ser Ser Tyr Pro Lys
                405                 410                 415

Pro Ile Lys Gly Leu Phe Thr Gly Val Pro Asn Gln Pro Ser Ala Ala
            420                 425                 430

Met Ser Trp Gln Asp Gly Arg Val Tyr Phe Phe Lys Gly Lys Val Tyr
        435                 440                 445

Trp Arg Leu Asn Gln Gln Leu Arg Val Glu Lys Gly Tyr Pro Arg Asn
    450                 455                 460

Ile Ser His Asn Trp Met His Cys Arg Pro Arg Thr Ile Asp Thr Thr
465                 470                 475                 480

Pro Ser Gly Gly Asn Thr Thr Pro Ser Gly Thr Gly Ile Thr Leu Asp
                485                 490                 495

Thr Thr Leu Ser Ala Thr Glu Thr Thr Phe Glu Tyr
            500                 505
```

<210> 31
<211> 942
<212> DNA
<213> Homo sapiens

<400> 31
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cgccacgtgc gcgccgcgcg gccagtgcct tggaacgcgc tgctgcggcg ccgcgcgcgc 180

ggccctcctg ccgccgttct cgcctgcctg ctgcccgacc gcgcgctgcg gacgcgcctg 240

gtccgcgggg agctggcgcg ggccgtggtg ctggacgagg gcagtgcctc ggtggcggag 300

ctccggcccg acagcccggc tcatgtgctg ctggccgcgc tgctgcacga gacccgcgcg 360

gggcccactg ccgtgtactt cctgcgagga ggcttcgacg gcttccaggg ctgctgtccc 420

gatctgtgct ctgaggcccc cgcccctgcg ctgccgccaa caggggacaa aaccagccgc 480

tccgactcca gggctcctgt ctacgaccag ggtggccctg tggagatctt gccctacctg 540

ttcctgggca gctgcagtca ctcgtcagac ctgcaggggc tgcaggcctg tggcatcaca 600

gccgtcctca acgtgtccgc cagctgcccc aaccactttg agggcctttt ccgctacaag 660

agtatccctg tggaggacaa ccagatggtg gagatcagtg cctggttcca ggaggccata 720

ggcttcattg actgggtgaa gaacagcgga ggccgggtgc tggtgcactg ccaggcgggt 780

atctcgcgct ctgccaccat ctgtctggca tacctcatgc agagtcgccg tgtgcggctg 840

gacgaggcct ttgacttcgt taagcagcgc cgggggggtca tctcccccaa cttcagtttc 900

atggggcagc tgctgcagtt tgagacccag gtgctgtgtc ac 942

<210> 32
<211> 314
<212> PRT
<213> Homo sapiens

<400> 32
Met Gly Leu Glu Ala Ala Arg Glu Leu Glu Cys Ala Ala Leu Gly Thr
1 5 10 15

Leu Leu Arg Asp Pro Arg Glu Ala Glu Arg Thr Leu Leu Leu Asp Cys
20 25 30

Arg Pro Phe Leu Ala Phe Cys Arg Arg His Val Arg Ala Ala Arg Pro
35 40 45

```
Val Pro Trp Asn Ala Leu Leu Arg Arg Arg Ala Arg Gly Pro Pro Ala
    50                  55                  60

Ala Val Leu Ala Cys Leu Leu Pro Asp Arg Ala Leu Arg Thr Arg Leu
65                  70                  75                  80

Val Arg Gly Glu Leu Ala Arg Ala Val Val Leu Asp Glu Gly Ser Ala
                85                  90                  95

Ser Val Ala Glu Leu Arg Pro Asp Ser Pro Ala His Val Leu Leu Ala
            100                 105                 110

Ala Leu Leu His Glu Thr Arg Ala Gly Pro Thr Ala Val Tyr Phe Leu
        115                 120                 125

Arg Gly Gly Phe Asp Gly Phe Gln Gly Cys Cys Pro Asp Leu Cys Ser
    130                 135                 140

Glu Ala Pro Ala Pro Ala Leu Pro Pro Thr Gly Asp Lys Thr Ser Arg
145                 150                 155                 160

Ser Asp Ser Arg Ala Pro Val Tyr Asp Gln Gly Gly Pro Val Glu Ile
                165                 170                 175

Leu Pro Tyr Leu Phe Leu Gly Ser Cys Ser His Ser Ser Asp Leu Gln
            180                 185                 190

Gly Leu Gln Ala Cys Gly Ile Thr Ala Val Leu Asn Val Ser Ala Ser
        195                 200                 205

Cys Pro Asn His Phe Glu Gly Leu Phe Arg Tyr Lys Ser Ile Pro Val
    210                 215                 220

Glu Asp Asn Gln Met Val Glu Ile Ser Ala Trp Phe Gln Glu Ala Ile
225                 230                 235                 240

Gly Phe Ile Asp Trp Val Lys Asn Ser Gly Gly Arg Val Leu Val His
                245                 250                 255

Cys Gln Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu
            260                 265                 270
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Met Gln Ser Arg Arg Val Arg Leu Asp Glu Ala Phe Asp Phe Val Lys
275 280 285

Gln Arg Arg Gly Val Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu
290 295 300

Leu Gln Phe Glu Thr Gln Val Leu Cys His
305 310

<210> 33
<211> 1152
<212> DNA
<213> Homo sapiens

<400> 33
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gcgcgctgcg tggtgctcga ctgccggccc tatctggcct tcgctgcctc gaacgtgcgc 120

ggctcgctca acgtcaacct caactcggtg gtgctgcggc gggcccgggg cggcgcggtg 180

tcggcgcgct acgtgctgcc cgacgaggcg gcgcgcgcgc ggctcctgca ggagggcggc 240

ggcggcgtcg cggccgtggt ggtgctggac cagggcagcc gccactggca gaagctgcga 300

gaggagagcg ccgcgcgtgt cgtcctcacc tcgctactcg cttgcctacc cgccggcccg 360

cgggtctact tcctcaaagg gggatatgag actttctact cggaatatcc tgagtgttgc 420

gtggatgtaa aacccatttc acaagagaag attgagagtg agagagccct catcagccag 480

tgtggaaaac cagtggtaaa tgtcagctac aggccagctt atgaccaggg tggcccagtt 540

gaaatccttc ccttcctcta ccttggaagt gcctaccatg catccaagtg cgagttcctc 600

gccaacttgc acatcacagc cctgctgaat gtctcccgac ggacctccga ggcctgcatg 660

acccacctac actacaaatg gatccctgtg gaagacagcc acacggctga cattagctcc 720

cactttcaag aagcaataga cttcattgac tgtgtcaggg aaaagggagg caaggtcctg 780

gtccactgtg aggctgggat ctcccgttca cccaccatct gcatggctta ccttatgaag 840

accaagcagt tccgcctgaa ggaggccttc gattacatca agcagaggag gagcatggtc 900

tcgcccaact ttggcttcat gggccagctc ctgcagtacg aatctgagat cctgccctcc 960

acgcccaacc cccagcctcc ctcctgccaa ggggaggcag caggctcttc actgataggc 1020

catttgcaga cactgagccc tgacatgcag ggtgcctact gcacattccc tgcctcggtg 1080

ctggcaccgg tgcctaccca ctcaacagtc tcagagctca gcagaagccc tgtggcaacg 1140

gccacatcct gc 1152

<210> 34
<211> 384
<212> PRT
<213> Homo sapiens

<400> 34

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Met Lys Val Thr Ser Leu Asp Gly Arg Gln Leu Arg Lys Met Leu Arg
1               5                   10                  15

Lys Glu Ala Ala Ala Arg Cys Val Val Leu Asp Cys Arg Pro Tyr Leu
            20                  25                  30

Ala Phe Ala Ala Ser Asn Val Arg Gly Ser Leu Asn Val Asn Leu Asn
        35                  40                  45

Ser Val Val Leu Arg Arg Ala Arg Gly Gly Ala Val Ser Ala Arg Tyr
    50                  55                  60

Val Leu Pro Asp Glu Ala Ala Arg Ala Arg Leu Leu Gln Glu Gly Gly
65                  70                  75                  80

Gly Gly Val Ala Ala Val Val Val Leu Asp Gln Gly Ser Arg His Trp
                85                  90                  95

Gln Lys Leu Arg Glu Glu Ser Ala Ala Arg Val Val Leu Thr Ser Leu
            100                 105                 110

Leu Ala Cys Leu Pro Ala Gly Pro Arg Val Tyr Phe Leu Lys Gly Gly
        115                 120                 125

Tyr Glu Thr Phe Tyr Ser Glu Tyr Pro Glu Cys Cys Val Asp Val Lys
    130                 135                 140

Pro Ile Ser Gln Glu Lys Ile Glu Ser Glu Arg Ala Leu Ile Ser Gln
145                 150                 155                 160

Cys Gly Lys Pro Val Val Asn Val Ser Tyr Arg Pro Ala Tyr Asp Gln
                165                 170                 175

Gly Gly Pro Val Glu Ile Leu Pro Phe Leu Tyr Leu Gly Ser Ala Tyr
            180                 185                 190

His Ala Ser Lys Cys Glu Phe Leu Ala Asn Leu His Ile Thr Ala Leu
        195                 200                 205
```

Leu Asn Val Ser Arg Arg Thr Ser Glu Ala Cys Met Thr His Leu His
210 215 220

Tyr Lys Trp Ile Pro Val Glu Asp Ser His Thr Ala Asp Ile Ser Ser
225 230 235 240

His Phe Gln Glu Ala Ile Asp Phe Ile Asp Cys Val Arg Glu Lys Gly
245 250 255

Gly Lys Val Leu Val His Cys Glu Ala Gly Ile Ser Arg Ser Pro Thr
260 265 270

Ile Cys Met Ala Tyr Leu Met Lys Thr Lys Gln Phe Arg Leu Lys Glu
275 280 285

Ala Phe Asp Tyr Ile Lys Gln Arg Arg Ser Met Val Ser Pro Asn Phe
290 295 300

Gly Phe Met Gly Gln Leu Leu Gln Tyr Glu Ser Glu Ile Leu Pro Ser
305 310 315 320

Thr Pro Asn Pro Gln Pro Pro Ser Cys Gln Gly Glu Ala Ala Gly Ser
325 330 335

Ser Leu Ile Gly His Leu Gln Thr Leu Ser Pro Asp Met Gln Gly Ala
340 345 350

Tyr Cys Thr Phe Pro Ala Ser Val Leu Ala Pro Val Pro Thr His Ser
355 360 365

Thr Val Ser Glu Leu Ser Arg Ser Pro Val Ala Thr Ala Thr Ser Cys
370 375 380

<210> 35
<211> 741
<212> DNA
<213> Homo sapiens

<400> 35
atgctccaaa actcagcagt gcttctggtg ctggtgatca gtgcttctgc aacccatgag 60

gcggagcaga atgactctgt gagccccagg aaatcccgag tggcggccca aaactcagct 120

gaagtggttc gttgcctcaa cagtgctcta caggtcggct gcggggcttt tgcatgcctg 180

gaaaactcca cctgtgacac agatgggatg tatgacatct gtaaatcctt cttgtacagc 240

gctgctaaat ttgacactca gggaaaagca ttcgtcaaag agagcttaaa atgcatcgcc 300

aacggggtca cctccaaggt cttcctcgcc attcggaggt gctccacttt ccaaaggatg 360

attgctgagg tgcaggaaga gtgctacagc aagctgaatg tgtgcagcat cgccaagcgg 420

aaccctgaag ccatcactga ggtcgtccag ctgcccaatc acttctccaa cagatactat 480

aacagacttg tccgaagcct gctggaatgt gatgaagaca cagtcagcac aatcagagac 540

agcctgatgg agaaaattgg gcctaacatg gccagcctct tccacatcct gcagacagac 600

cactgtgccc aaacacaccc acgagctgac ttcaacagga gacgcaccaa tgagccgcag 660

aagctgaaag tcctcctcag gaacctccga ggtgaggagg actctccctc ccacatcaaa 720

cgcacatccc atgagagtgc a 741

<210> 36
<211> 247
<212> PRT
<213> Homo sapiens

<400> 36

Met Leu Gln Asn Ser Ala Val Leu Leu Val Leu Val Ile Ser Ala Ser
1 5 10 15

Ala Thr His Glu Ala Glu Gln Asn Asp Ser Val Ser Pro Arg Lys Ser
20 25 30

Arg Val Ala Ala Gln Asn Ser Ala Glu Val Val Arg Cys Leu Asn Ser
35 40 45

Ala Leu Gln Val Gly Cys Gly Ala Phe Ala Cys Leu Glu Asn Ser Thr
50 55 60

Cys Asp Thr Asp Gly Met Tyr Asp Ile Cys Lys Ser Phe Leu Tyr Ser
65 70 75 80

Ala Ala Lys Phe Asp Thr Gln Gly Lys Ala Phe Val Lys Glu Ser Leu
85 90 95

Lys Cys Ile Ala Asn Gly Val Thr Ser Lys Val Phe Leu Ala Ile Arg
100 105 110

Arg Cys Ser Thr Phe Gln Arg Met Ile Ala Glu Val Gln Glu Glu Cys
115 120 125

Tyr Ser Lys Leu Asn Val Cys Ser Ile Ala Lys Arg Asn Pro Glu Ala
130 135 140

Ile Thr Glu Val Val Gln Leu Pro Asn His Phe Ser Asn Arg Tyr Tyr
145 150 155 160

Asn Arg Leu Val Arg Ser Leu Leu Glu Cys Asp Glu Asp Thr Val Ser
165 170 175

Thr Ile Arg Asp Ser Leu Met Glu Lys Ile Gly Pro Asn Met Ala Ser
180 185 190

Leu Phe His Ile Leu Gln Thr Asp His Cys Ala Gln Thr His Pro Arg
195 200 205

Ala Asp Phe Asn Arg Arg Arg Thr Asn Glu Pro Gln Lys Leu Lys Val
210 215 220

Leu Leu Arg Asn Leu Arg Gly Glu Glu Asp Ser Pro Ser His Ile Lys
225 230 235 240

Arg Thr Ser His Glu Ser Ala
245

<210> 37
<211> 2580
<212> DNA
<213> Homo sapiens

<400> 37
atggggccct ggggctggaa attgcgctgg accgtcgcct tgctcctcgc cgcggcgggg 60

actgcagtgg gcgacagatg tgaaagaaac gagttccagt gccaagacgg gaaatgcatc 120

tcctacaagt gggtctgcga tggcagcgct gagtgccagg atggctctga tgagtcccag 180

gagacgtgct tgtctgtcac ctgcaaatcc ggggacttca gctgtggggg ccgtgtcaac 240

cgctgcattc ctcagttctg gaggtgcgat ggccaagtgg actgcgacaa cggctcagac 300

gagcaaggct gtccccccaa gacgtgctcc caggacgagt ttcgctgcca cgatgggaag 360

tgcatctctc ggcagttcgt ctgtgactca gaccgggact gcttggacgg ctcagacgag 420

gcctcctgcc cggtgctcac ctgtggtccc gccagcttcc agtgcaacag ctccacctgc 480

atcccccagc tgtgggcctg cgacaacgac cccgactgcg aagatggctc ggatgagtgg 540

ccgcagcgct gtaggggtct ttacgtgttc caaggggaca gtagcccctg ctcggccttc 600

gagttccact gcctaagtgg cgagtgcatc cactccagct ggcgctgtga tggtggcccc 660

gactgcaagg acaaatctga cgaggaaaac tgcgctgtgg ccacctgtcg ccctgacgaa 720

ttccagtgct ctgatggaaa ctgcatccat ggcagccggc agtgtgaccg ggaatatgac 780

tgcaaggaca tgagcgatga agttggctgc gttaatgtga cactctgcga gggacccaac 840

aagttcaagt gtcacagcgg cgaatgcatc accctggaca aagtctgcaa catggctaga 900

gactgccggg actggtcaga tgaacccatc aaagagtgcg ggaccaacga atgcttggac 960

aacaacggcg gctgttccca cgtctgcaat gaccttaaga tcggctacga gtgcctgtgc 1020

cccgacggct tccagctggt ggcccagcga agatgcgaag atatcgatga gtgtcaggat 1080

cccgacacct gcagccagct ctgcgtgaac ctggagggtg gctacaagtg ccagtgtgag 1140

gaaggcttcc agctggaccc ccacacgaag gcctgcaagg ctgtgggctc catcgcctac 1200

ctcttcttca ccaaccggca cgaggtcagg aagatgacgc tggaccggag cgagtacacc 1260

agcctcatcc ccaacctgag gaacgtggtc gctctggaca cggaggtggc cagcaataga 1320

atctactggt ctgacctgtc ccagagaatg atctgcagca cccagcttga cagagcccac 1380

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gtggactgga tccacagcaa catctactgg accgactctg tcctgggcac tgtctctgtt 1500

gcggatacca agggcgtgaa gaggaaaacg ttattcaggg agaacggctc caagccaagg 1560

gccatcgtgg tggatcctgt tcatggcttc atgtactgga ctgactgggg aactcccgcc 1620

aagatcaaga aaggggcct gaatggtgtg gacatctact cgctggtgac tgaaaacatt 1680

cagtggccca atggcatcac cctagatctc ctcagtggcc gcctctactg ggttgactcc 1740

aaacttcact ccatctcaag catcgatgtc aatgggggca accggaagac catcttggag 1800

gatgaaaaga ggctggccca ccccttctcc ttggccgtct ttgaggacaa agtattttgg 1860

acagatatca tcaacgaagc cattttcagt gccaaccgcc tcacaggttc cgatgtcaac 1920

ttgttggctg aaaacctact gtccccagag gatatggtcc tcttccacaa cctcacccag 1980

ccaagaggag tgaactggtg tgagaggacc accctgagca atggcggctg ccagtatctg 2040

tgcctccctg ccccgcagat caacccccac tcgcccaagt ttacctgcgc ctgcccggac 2100

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gagaagaagc ccagtagcgt gagggctctg tccattgtcc tccccatcgt gctcctcgtc 2400

ttcctttgcc tgggggtctt ccttctatgg aagaactggc ggcttaagaa catcaacagc 2460

atcaactttg acaaccccgt ctatcagaag accacagagg atgaggtcca catttgccac 2520

aaccaggacg gctacagcta cccctcgaga cagatggtca gtctggagga tgacgtggcg 2580

<210> 38
<211> 860
<212> PRT
<213> Homo sapiens

<400> 38

Met Gly Pro Trp Gly Trp Lys Leu Arg Trp Thr Val Ala Leu Leu Leu
1 5 10 15

Ala Ala Ala Gly Thr Ala Val Gly Asp Arg Cys Glu Arg Asn Glu Phe
20 25 30

Gln Cys Gln Asp Gly Lys Cys Ile Ser Tyr Lys Trp Val Cys Asp Gly
35 40 45

Ser Ala Glu Cys Gln Asp Gly Ser Asp Glu Ser Gln Glu Thr Cys Leu
50 55 60

Ser Val Thr Cys Lys Ser Gly Asp Phe Ser Cys Gly Gly Arg Val Asn
65 70 75 80

Arg Cys Ile Pro Gln Phe Trp Arg Cys Asp Gly Gln Val Asp Cys Asp
85 90 95

Asn Gly Ser Asp Glu Gln Gly Cys Pro Pro Lys Thr Cys Ser Gln Asp
100 105 110

Glu Phe Arg Cys His Asp Gly Lys Cys Ile Ser Arg Gln Phe Val Cys
115 120 125

Asp Ser Asp Arg Asp Cys Leu Asp Gly Ser Asp Glu Ala Ser Cys Pro
130 135 140

Val Leu Thr Cys Gly Pro Ala Ser Phe Gln Cys Asn Ser Ser Thr Cys
145 150 155 160

Ile Pro Gln Leu Trp Ala Cys Asp Asn Asp Pro Asp Cys Glu Asp Gly
165 170 175

```
Ser Asp Glu Trp Pro Gln Arg Cys Arg Gly Leu Tyr Val Phe Gln Gly
            180                 185                 190

Asp Ser Ser Pro Cys Ser Ala Phe Glu Phe His Cys Leu Ser Gly Glu
        195                 200                 205

Cys Ile His Ser Ser Trp Arg Cys Asp Gly Gly Pro Asp Cys Lys Asp
    210                 215                 220

Lys Ser Asp Glu Glu Asn Cys Ala Val Ala Thr Cys Arg Pro Asp Glu
225                 230                 235                 240

Phe Gln Cys Ser Asp Gly Asn Cys Ile His Gly Ser Arg Gln Cys Asp
                245                 250                 255

Arg Glu Tyr Asp Cys Lys Asp Met Ser Asp Glu Val Gly Cys Val Asn
            260                 265                 270

Val Thr Leu Cys Glu Gly Pro Asn Lys Phe Lys Cys His Ser Gly Glu
        275                 280                 285

Cys Ile Thr Leu Asp Lys Val Cys Asn Met Ala Arg Asp Cys Arg Asp
    290                 295                 300

Trp Ser Asp Glu Pro Ile Lys Glu Cys Gly Thr Asn Glu Cys Leu Asp
305                 310                 315                 320

Asn Asn Gly Gly Cys Ser His Val Cys Asn Asp Leu Lys Ile Gly Tyr
                325                 330                 335

Glu Cys Leu Cys Pro Asp Gly Phe Gln Leu Val Ala Gln Arg Arg Cys
            340                 345                 350

Glu Asp Ile Asp Glu Cys Gln Asp Pro Asp Thr Cys Ser Gln Leu Cys
        355                 360                 365

Val Asn Leu Glu Gly Gly Tyr Lys Cys Gln Cys Glu Glu Gly Phe Gln
    370                 375                 380

Leu Asp Pro His Thr Lys Ala Cys Lys Ala Val Gly Ser Ile Ala Tyr
385                 390                 395                 400
```

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Leu Phe Phe Thr Asn Arg His Glu Val Arg Lys Met Thr Leu Asp Arg
                405                 410                 415

Ser Glu Tyr Thr Ser Leu Ile Pro Asn Leu Arg Asn Val Val Ala Leu
            420                 425                 430

Asp Thr Glu Val Ala Ser Asn Arg Ile Tyr Trp Ser Asp Leu Ser Gln
        435                 440                 445

Arg Met Ile Cys Ser Thr Gln Leu Asp Arg Ala His Gly Val Ser Ser
    450                 455                 460

Tyr Asp Thr Val Ile Ser Arg Asp Ile Gln Ala Pro Asp Gly Leu Ala
465                 470                 475                 480

Val Asp Trp Ile His Ser Asn Ile Tyr Trp Thr Asp Ser Val Leu Gly
                485                 490                 495

Thr Val Ser Val Ala Asp Thr Lys Gly Val Lys Arg Lys Thr Leu Phe
            500                 505                 510

Arg Glu Asn Gly Ser Lys Pro Arg Ala Ile Val Val Asp Pro Val His
        515                 520                 525

Gly Phe Met Tyr Trp Thr Asp Trp Gly Thr Pro Ala Lys Ile Lys Lys
    530                 535                 540

Gly Gly Leu Asn Gly Val Asp Ile Tyr Ser Leu Val Thr Glu Asn Ile
545                 550                 555                 560

Gln Trp Pro Asn Gly Ile Thr Leu Asp Leu Leu Ser Gly Arg Leu Tyr
                565                 570                 575

Trp Val Asp Ser Lys Leu His Ser Ile Ser Ser Ile Asp Val Asn Gly
            580                 585                 590

Gly Asn Arg Lys Thr Ile Leu Glu Asp Glu Lys Arg Leu Ala His Pro
        595                 600                 605

Phe Ser Leu Ala Val Phe Glu Asp Lys Val Phe Trp Thr Asp Ile Ile
    610                 615                 620

Asn Glu Ala Ile Phe Ser Ala Asn Arg Leu Thr Gly Ser Asp Val Asn
625                 630                 635                 640
```

Leu Leu Ala Glu Asn Leu Leu Ser Pro Glu Asp Met Val Leu Phe His
645 650 655

Asn Leu Thr Gln Pro Arg Gly Val Asn Trp Cys Glu Arg Thr Thr Leu
660 665 670

Ser Asn Gly Gly Cys Gln Tyr Leu Cys Leu Pro Ala Pro Gln Ile Asn
675 680 685

Pro His Ser Pro Lys Phe Thr Cys Ala Cys Pro Asp Gly Met Leu Leu
690 695 700

Ala Arg Asp Met Arg Ser Cys Leu Thr Glu Ala Glu Ala Ala Val Ala
705 710 715 720

Thr Gln Glu Thr Ser Thr Val Arg Leu Lys Val Ser Ser Thr Ala Val
725 730 735

Arg Thr Gln His Thr Thr Thr Arg Pro Val Pro Asp Thr Ser Arg Leu
740 745 750

Pro Gly Ala Thr Pro Gly Leu Thr Thr Val Glu Ile Val Thr Met Ser
755 760 765

His Gln Ala Leu Gly Asp Val Ala Gly Arg Gly Asn Glu Lys Lys Pro
770 775 780

Ser Ser Val Arg Ala Leu Ser Ile Val Leu Pro Ile Val Leu Leu Val
785 790 795 800

Phe Leu Cys Leu Gly Val Phe Leu Leu Trp Lys Asn Trp Arg Leu Lys
805 810 815

Asn Ile Asn Ser Ile Asn Phe Asp Asn Pro Val Tyr Gln Lys Thr Thr
820 825 830

Glu Asp Glu Val His Ile Cys His Asn Gln Asp Gly Tyr Ser Tyr Pro
835 840 845

Ser Arg Gln Met Val Ser Leu Glu Asp Asp Val Ala
850 855 860

<210> 39
<211> 1320
<212> DNA
<213> Homo sapiens

<400> 39
atggaacaac ggggacagaa cgccccggcc gcttcggggg cccggaaaag gcacggccca 60

ggacccaggg aggcgcgggg agccaggcct gggctccggg tccccaagac ccttgtgctc 120

gttgtcgccg cggtcctgct gttggtctca gctgagtctg ctctgatcac ccaacaagac 180

ctagctcccc agcagagagt ggccccacaa caaaagaggt ccagcccctc agagggattg 240

tgtccacctg gacaccatat ctcagaagac ggtagagatt gcatctcctg caaatatgga 300

caggactata gcactcactg gaatgacctc cttttctgct tgcgctgcac caggtgtgat 360

tcaggtgaag tggagctaag tccctgcacc acgaccagaa acacagtgtg tcagtgcgaa 420

gaaggcacct tccgggaaga agattctcct gagatgtgcc ggaagtgccg cacagggtgt 480

cccagaggga tggtcaaggt cggtgattgt acaccctgga gtgacatcga atgtgtccac 540

aaagaatcag gtacaaagca cagtggggaa gccccagctg tggaggagac ggtgacctcc 600

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agctcacaac gacctggggc tgaggacaat gtcctcaatg agatcgtgag tatcttgcag 840

cccacccagg tccctgagca ggaaatggaa gtccaggagc cagcagagcc aacaggtgtc 900

aacatgttgt cccccgggga gtcagagcat ctgctggaac cggcagaagc tgaaaggtct 960

cagaggagga ggctgctggt tccagcaaat gaaggtgatc ccactgagac tctgagacag 1020

tgcttcgatg actttgcaga cttggtgccc tttgactcct gggagccgct catgaggaag 1080

ttgggcctca tggacaatga gataaaggtg gctaaagctg aggcagcggg ccacagggac 1140

accttgtaca cgatgctgat aaagtgggtc aacaaaaccg ggcgagatgc ctctgtccac 1200

accctgctgg atgccttgga gacgctggga gagagacttg ccaagcagaa gattgaggac 1260

cacttgttga gctctggaaa gttcatgtat ctagaaggta atgcagactc tgccatgtcc 1320

<210> 40
<211> 440
<212> PRT
<213> Homo sapiens

<400> 40

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Met Glu Gln Arg Gly Gln Asn Ala Pro Ala Ala Ser Gly Ala Arg Lys
1               5                  10                  15

Arg His Gly Pro Gly Pro Arg Glu Ala Arg Gly Ala Arg Pro Gly Leu
            20                  25                  30

Arg Val Pro Lys Thr Leu Val Leu Val Val Ala Ala Val Leu Leu Leu
        35                  40                  45

Val Ser Ala Glu Ser Ala Leu Ile Thr Gln Gln Asp Leu Ala Pro Gln
    50                  55                  60

Gln Arg Val Ala Pro Gln Gln Lys Arg Ser Ser Pro Ser Glu Gly Leu
65                  70                  75                  80

Cys Pro Pro Gly His His Ile Ser Glu Asp Gly Arg Asp Cys Ile Ser
                85                  90                  95

Cys Lys Tyr Gly Gln Asp Tyr Ser Thr His Trp Asn Asp Leu Leu Phe
            100                 105                 110

Cys Leu Arg Cys Thr Arg Cys Asp Ser Gly Glu Val Glu Leu Ser Pro
        115                 120                 125

Cys Thr Thr Thr Arg Asn Thr Val Cys Gln Cys Glu Glu Gly Thr Phe
    130                 135                 140

Arg Glu Glu Asp Ser Pro Glu Met Cys Arg Lys Cys Arg Thr Gly Cys
145                 150                 155                 160

Pro Arg Gly Met Val Lys Val Gly Asp Cys Thr Pro Trp Ser Asp Ile
                165                 170                 175

Glu Cys Val His Lys Glu Ser Gly Thr Lys His Ser Gly Glu Ala Pro
            180                 185                 190

Ala Val Glu Glu Thr Val Thr Ser Ser Pro Gly Thr Pro Ala Ser Pro
        195                 200                 205

Cys Ser Leu Ser Gly Ile Ile Ile Gly Val Thr Val Ala Ala Val Val
    210                 215                 220
```

```
Leu Ile Val Ala Val Phe Val Cys Lys Ser Leu Leu Trp Lys Lys Val
225                 230                 235                 240

Leu Pro Tyr Leu Lys Gly Ile Cys Ser Gly Gly Gly Gly Asp Pro Glu
                245                 250                 255

Arg Val Asp Arg Ser Ser Gln Arg Pro Gly Ala Glu Asp Asn Val Leu
            260                 265                 270

Asn Glu Ile Val Ser Ile Leu Gln Pro Thr Gln Val Pro Glu Gln Glu
        275                 280                 285

Met Glu Val Gln Glu Pro Ala Glu Pro Thr Gly Val Asn Met Leu Ser
    290                 295                 300

Pro Gly Glu Ser Glu His Leu Leu Glu Pro Ala Glu Ala Glu Arg Ser
305                 310                 315                 320

Gln Arg Arg Arg Leu Leu Val Pro Ala Asn Glu Gly Asp Pro Thr Glu
                325                 330                 335

Thr Leu Arg Gln Cys Phe Asp Asp Phe Ala Asp Leu Val Pro Phe Asp
            340                 345                 350

Ser Trp Glu Pro Leu Met Arg Lys Leu Gly Leu Met Asp Asn Glu Ile
        355                 360                 365

Lys Val Ala Lys Ala Glu Ala Ala Gly His Arg Asp Thr Leu Tyr Thr
    370                 375                 380

Met Leu Ile Lys Trp Val Asn Lys Thr Gly Arg Asp Ala Ser Val His
385                 390                 395                 400

Thr Leu Leu Asp Ala Leu Glu Thr Leu Gly Glu Arg Leu Ala Lys Gln
                405                 410                 415

Lys Ile Glu Asp His Leu Leu Ser Ser Gly Lys Phe Met Tyr Leu Glu
            420                 425                 430

Gly Asn Ala Asp Ser Ala Met Ser
        435                 440
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<210> 41
<211> 387
<212> DNA
<213> Homo sapiens

<400> 41
atggctcggg gctcgctgcg ccggttgctg cggctcctcg tgctggggct ctggctggcg 60

ttgctgcgct ccgtggccgg ggagcaagcg ccaggcaccg ccccctgctc ccgcggcagc 120

tcctggagcg cggacctgga caagtgcatg gactgcgcgt cttgcagggc gcgaccgcac 180

agcgacttct gcctgggctg cgctgcagca cctcctgccc ccttccggct gctttggccc 240

atccttgggg gcgctctgag cctgaccttc gtgctggggc tgctttctgg ctttttggtc 300

tggagacgat gccgcaggag agagaagttc accaccccca tagaggagac cggcggagag 360

ggctgcccag ctgtggcgct gatccag 387

<210> 42
<211> 129
<212> PRT
<213> Homo sapiens

<400> 42
Met Ala Arg Gly Ser Leu Arg Arg Leu Leu Arg Leu Leu Val Leu Gly
1 5 10 15

Leu Trp Leu Ala Leu Leu Arg Ser Val Ala Gly Glu Gln Ala Pro Gly
20 25 30

Thr Ala Pro Cys Ser Arg Gly Ser Ser Trp Ser Ala Asp Leu Asp Lys
35 40 45

Cys Met Asp Cys Ala Ser Cys Arg Ala Arg Pro His Ser Asp Phe Cys
50 55 60

Leu Gly Cys Ala Ala Ala Pro Pro Ala Pro Phe Arg Leu Leu Trp Pro
65 70 75 80

Ile Leu Gly Gly Ala Leu Ser Leu Thr Phe Val Leu Gly Leu Leu Ser
85 90 95

Gly Phe Leu Val Trp Arg Arg Cys Arg Arg Arg Glu Lys Phe Thr Thr
100 105 110

Pro Ile Glu Glu Thr Gly Gly Glu Gly Cys Pro Ala Val Ala Leu Ile
115 120 125

Gln

<210> 43
<211> 1401
<212> DNA
<213> Homo sapiens

<400> 43
atggagtaca tgagcactgg aagtgacaat aaagaagaga ttgatttatt aattaaacat 60

ttaaatgtgt ctgatgtaat agacattatg gaaaatcttt atgcaagtga agagccagca 120

gtttatgaac ccagtctaat gaccatgtgt caagacagta atcaaaacga tgagcgttct 180

aagtctctgc tgcttagtgg ccaagaggta ccatggttgt catcagtcag atatggaact 240

gtggaggatt tgcttgcttt tgcaaaccat atatccaaca ctgcaaagca tttttatgga 300

caacgaccac aggaatctgg aattttatta aacatggtca tcactcccca aaatggacgt 360

taccaaatag attccgatgt tctcctgatc ccctggaagc tgacttacag gaatattggt 420

tctgatttta ttcctcgggg cgcctttgga aaggtatact tggcacaaga tataaagacg 480

aagaaaagaa tggcgtgtaa actgatccca gtagatcaat ttaagccatc tgatgtggaa 540

atccaggctt gcttccggca cgagaacatc gcagagctgt atggcgcagt cctgtggggt 600

gaaactgtcc atctctttat ggaagcaggc gagggagggt ctgttctgga gaaactggag 660

agctgtggac caatgagaga atttgaaatt atttgggtga caaagcatgt tctcaaggga 720

cttgattttc tacactcaaa gaaagtgatc catcatgata ttaaacctag caacattgtt 780

ttcatgtcca caaaagctgt tttggtggat tttggcctaa gtgttcaaat gaccgaagat 840

gtctattttc ctaaggacct ccgaggaaca gagatttaca tgagcccaga ggtcatcctg 900

tgcaggggcc attcaaccaa agcagacatc tacagcctgg gggccacgct catccacatg 960

cagacgggca ccccaccctg ggtgaagcgc taccctcgct cagcctatcc ctcctacctg 1020

tacataatcc acaagcaagc acctccactg gaagacattg cagatgactg cagtccaggg 1080

atgagagagc tgatagaagc ttccctggag agaaacccca atcaccgccc aagagccgca 1140

gacctactaa aacatgaggc cctgaacccg cccagagagg atcagccacg ctgtcagagt 1200

ctggactctg ccctcttgga gcgcaagagg ctgctgagta ggaaggagct ggaacttcct 1260

gagaacattg ctgattcttc gtgcacagga agcaccgagg aatctgagat gctcaagagg 1320

caacgctctc tctacatcga cctcggcgct ctggctggct acttcaatct tgttcgggga 1380

ccaccaacgc ttgaatatgg c 1401

<210> 44
<211> 467
<212> PRT
<213> Homo sapiens

<400> 44

```
Met Glu Tyr Met Ser Thr Gly Ser Asp Asn Lys Glu Glu Ile Asp Leu
1               5                  10                  15

Leu Ile Lys His Leu Asn Val Ser Asp Val Ile Asp Ile Met Glu Asn
            20                  25                  30

Leu Tyr Ala Ser Glu Glu Pro Ala Val Tyr Glu Pro Ser Leu Met Thr
        35                  40                  45

Met Cys Gln Asp Ser Asn Gln Asn Asp Glu Arg Ser Lys Ser Leu Leu
    50                  55                  60

Leu Ser Gly Gln Glu Val Pro Trp Leu Ser Ser Val Arg Tyr Gly Thr
65                  70                  75                  80

Val Glu Asp Leu Leu Ala Phe Ala Asn His Ile Ser Asn Thr Ala Lys
                85                  90                  95

His Phe Tyr Gly Gln Arg Pro Gln Glu Ser Gly Ile Leu Leu Asn Met
            100                 105                 110

Val Ile Thr Pro Gln Asn Gly Arg Tyr Gln Ile Asp Ser Asp Val Leu
        115                 120                 125

Leu Ile Pro Trp Lys Leu Thr Tyr Arg Asn Ile Gly Ser Asp Phe Ile
    130                 135                 140

Pro Arg Gly Ala Phe Gly Lys Val Tyr Leu Ala Gln Asp Ile Lys Thr
145                 150                 155                 160

Lys Lys Arg Met Ala Cys Lys Leu Ile Pro Val Asp Gln Phe Lys Pro
                165                 170                 175

Ser Asp Val Glu Ile Gln Ala Cys Phe Arg His Glu Asn Ile Ala Glu
            180                 185                 190

Leu Tyr Gly Ala Val Leu Trp Gly Glu Thr Val His Leu Phe Met Glu
        195                 200                 205
```

```
Ala Gly Glu Gly Gly Ser Val Leu Glu Lys Leu Glu Ser Cys Gly Pro
    210                 215                 220

Met Arg Glu Phe Glu Ile Ile Trp Val Thr Lys His Val Leu Lys Gly
225                 230                 235                 240

Leu Asp Phe Leu His Ser Lys Lys Val Ile His His Asp Ile Lys Pro
                245                 250                 255

Ser Asn Ile Val Phe Met Ser Thr Lys Ala Val Leu Val Asp Phe Gly
            260                 265                 270

Leu Ser Val Gln Met Thr Glu Asp Val Tyr Phe Pro Lys Asp Leu Arg
        275                 280                 285

Gly Thr Glu Ile Tyr Met Ser Pro Glu Val Ile Leu Cys Arg Gly His
    290                 295                 300

Ser Thr Lys Ala Asp Ile Tyr Ser Leu Gly Ala Thr Leu Ile His Met
305                 310                 315                 320

Gln Thr Gly Thr Pro Pro Trp Val Lys Arg Tyr Pro Arg Ser Ala Tyr
                325                 330                 335

Pro Ser Tyr Leu Tyr Ile Ile His Lys Gln Ala Pro Pro Leu Glu Asp
            340                 345                 350

Ile Ala Asp Asp Cys Ser Pro Gly Met Arg Glu Leu Ile Glu Ala Ser
        355                 360                 365

Leu Glu Arg Asn Pro Asn His Arg Pro Arg Ala Ala Asp Leu Leu Lys
    370                 375                 380

His Glu Ala Leu Asn Pro Pro Arg Glu Asp Gln Pro Arg Cys Gln Ser
385                 390                 395                 400

Leu Asp Ser Ala Leu Leu Glu Arg Lys Arg Leu Leu Ser Arg Lys Glu
                405                 410                 415

Leu Glu Leu Pro Glu Asn Ile Ala Asp Ser Ser Cys Thr Gly Ser Thr
            420                 425                 430
```

Glu Glu Ser Glu Met Leu Lys Arg Gln Arg Ser Leu Tyr Ile Asp Leu
435 440 445

Gly Ala Leu Ala Gly Tyr Phe Asn Leu Val Arg Gly Pro Pro Thr Leu
450 455 460

Glu Tyr Gly
465

<210> 45
<211> 1629
<212> DNA
<213> Homo sapiens

<400> 45
atggccgcgg ccaaggccga gatgcagctg atgtccccgc tgcagatctc tgacccgttc 60

ggatcctttc ctcactcgcc caccatggac aactacccta agctggagga gatgatgctg 120

ctgagcaacg gggctcccca gttcctcggc gccgccgggg ccccagaggg cagcggcagc 180

aacagcagca gcagcagcag cgggggcggt ggaggcggcg ggggcggcag caacagcagc 240

agcagcagca gcaccttcaa ccctcaggcg gacacgggcg agcagcccta cgagcacctg 300

accgcagagt cttttcctga catctctctg aacaacgaga aggtgctggt ggagaccagt 360

taccccagcc aaaccactcg actgcccccc atcacctata ctggccgctt ttccctggag 420

cctgcaccca acagtggcaa caccttgtgg cccgagcccc tcttcagctt ggtcagtggc 480

ctagtgagca tgaccaaccc accggcctcc tcgtcctcag caccatctcc agcggcctcc 540

tccgcctccg cctcccagag cccacccctg agctgcgcag tgccatccaa cgacagcagt 600

cccatttact cagcggcacc caccttcccc acgccgaaca ctgacatttt ccctgagcca 660

caaagccagg ccttcccggg ctcggcaggg acagcgctcc agtacccgcc tcctgcctac 720

cctgccgcca agggtggctt ccaggttccc atgatccccg actacctgtt tccacagcag 780

caggggggatc tgggcctggg caccccagac cagaagccct tccagggcct ggagagccgc 840

acccagcagc cttcgctaac ccctctgtct actattaagg cctttgccac tcagtcgggc 900

tcccaggacc tgaaggccct caataccagc taccagtccc agctcatcaa acccagccgc 960

atgcgcaagt accccaaccg gcccagcaag acgccccccc acgaacgccc ttacgcttgc 1020

ccagtggagt cctgtgatcg ccgcttctcc cgctccgacg agctcacccg ccacatccgc 1080

atccacacag gccagaagcc cttccagtgc cgcatctgca tgcgcaactt cagccgcagc 1140

gaccacctca ccacccacat ccgcacccac acaggcgaaa agcccttcgc ctgcgacatc 1200

tgtggaagaa agtttgccag gagcgatgaa cgcaagaggc ataccaagat ccacttgcgg 1260

cagaaggaca agaaagcaga caaaagtgtt gtggcctctt cggccacctc ctctctctct 1320

tcctacccgt ccccggttgc tacctcttac ccgtccccgg ttactacctc ttatccatcc 1380

ccggccacca cctcataccc atcccctgtg cccacctcct tctcctctcc cggctcctcg 1440

acctacccat cccctgtgca cagtggcttc ccctccccgt cggtggccac cacgtactcc 1500

tctgttcccc ctgctttccc ggcccaggtc agcagcttcc cttcctcagc tgtcaccaac 1560

tccttcagcg cctccacagg gctttcggac atgacagcaa ccttttctcc caggacaatt 1620

gaaatttgc 1629

<210> 46
<211> 543
<212> PRT
<213> Homo sapiens

<400> 46

```
Met Ala Ala Ala Lys Ala Glu Met Gln Leu Met Ser Pro Leu Gln Ile
1               5                  10                  15

Ser Asp Pro Phe Gly Ser Phe Pro His Ser Pro Thr Met Asp Asn Tyr
            20                  25                  30

Pro Lys Leu Glu Glu Met Met Leu Leu Ser Asn Gly Ala Pro Gln Phe
        35                  40                  45

Leu Gly Ala Ala Gly Ala Pro Glu Gly Ser Gly Ser Asn Ser Ser Ser
    50                  55                  60

Ser Ser Ser Gly Gly Gly Gly Gly Gly Gly Gly Gly Ser Asn Ser Ser
65                  70                  75                  80

Ser Ser Ser Ser Thr Phe Asn Pro Gln Ala Asp Thr Gly Glu Gln Pro
                85                  90                  95

Tyr Glu His Leu Thr Ala Glu Ser Phe Pro Asp Ile Ser Leu Asn Asn
            100                 105                 110

Glu Lys Val Leu Val Glu Thr Ser Tyr Pro Ser Gln Thr Thr Arg Leu
        115                 120                 125

Pro Pro Ile Thr Tyr Thr Gly Arg Phe Ser Leu Glu Pro Ala Pro Asn
    130                 135                 140
```

```
Ser Gly Asn Thr Leu Trp Pro Glu Pro Leu Phe Ser Leu Val Ser Gly
145                 150                 155                 160

Leu Val Ser Met Thr Asn Pro Pro Ala Ser Ser Ser Ser Ala Pro Ser
                165                 170                 175

Pro Ala Ala Ser Ser Ala Ser Ala Ser Gln Ser Pro Pro Leu Ser Cys
            180                 185                 190

Ala Val Pro Ser Asn Asp Ser Ser Pro Ile Tyr Ser Ala Ala Pro Thr
        195                 200                 205

Phe Pro Thr Pro Asn Thr Asp Ile Phe Pro Glu Pro Gln Ser Gln Ala
    210                 215                 220

Phe Pro Gly Ser Ala Gly Thr Ala Leu Gln Tyr Pro Pro Pro Ala Tyr
225                 230                 235                 240

Pro Ala Ala Lys Gly Gly Phe Gln Val Pro Met Ile Pro Asp Tyr Leu
                245                 250                 255

Phe Pro Gln Gln Gln Gly Asp Leu Gly Leu Gly Thr Pro Asp Gln Lys
            260                 265                 270

Pro Phe Gln Gly Leu Glu Ser Arg Thr Gln Gln Pro Ser Leu Thr Pro
        275                 280                 285

Leu Ser Thr Ile Lys Ala Phe Ala Thr Gln Ser Gly Ser Gln Asp Leu
    290                 295                 300

Lys Ala Leu Asn Thr Ser Tyr Gln Ser Gln Leu Ile Lys Pro Ser Arg
305                 310                 315                 320

Met Arg Lys Tyr Pro Asn Arg Pro Ser Lys Thr Pro Pro His Glu Arg
                325                 330                 335

Pro Tyr Ala Cys Pro Val Glu Ser Cys Asp Arg Arg Phe Ser Arg Ser
            340                 345                 350

Asp Glu Leu Thr Arg His Ile Arg Ile His Thr Gly Gln Lys Pro Phe
        355                 360                 365
```

```
Gln Cys Arg Ile Cys Met Arg Asn Phe Ser Arg Ser Asp His Leu Thr
    370                 375                 380

Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys Asp Ile
385                 390                 395                 400

Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His Thr Lys
                405                 410                 415

Ile His Leu Arg Gln Lys Asp Lys Lys Ala Asp Lys Ser Val Val Ala
            420                 425                 430

Ser Ser Ala Thr Ser Ser Leu Ser Ser Tyr Pro Ser Pro Val Ala Thr
        435                 440                 445

Ser Tyr Pro Ser Pro Val Thr Thr Ser Tyr Pro Ser Pro Ala Thr Thr
    450                 455                 460

Ser Tyr Pro Ser Pro Val Pro Thr Ser Phe Ser Ser Pro Gly Ser Ser
465                 470                 475                 480

Thr Tyr Pro Ser Pro Val His Ser Gly Phe Pro Ser Pro Ser Val Ala
                485                 490                 495

Thr Thr Tyr Ser Ser Val Pro Pro Ala Phe Pro Ala Gln Val Ser Ser
            500                 505                 510

Phe Pro Ser Ser Ala Val Thr Asn Ser Phe Ser Ala Ser Thr Gly Leu
        515                 520                 525

Ser Asp Met Thr Ala Thr Phe Ser Pro Arg Thr Ile Glu Ile Cys
    530                 535                 540
```

<210> 47
<211> 1161
<212> DNA
<213> Homo sapiens

<400> 47
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cctgacaatc tgtaccccga ggagatcccc agcgcgctca acctcttctc cggcagcagc 120

gactcggtag tccattacaa tcagatggct acagagaatg taatggacat cggtctgacc 180

aacgagaagc ccaacccgga actctcttac tccggctcct tccagccagc ccccggcaac 240

aagaccgtga cctacttggg aaagttcgcc ttcgactccc cttccaactg gtgccaggac 300

aacatcatta gcctcatgag cgccggcatc ttgggggtgc ccccggcttc aggggcgctc 360

agcacgcaga cgtccacggc cagcatggtg cagccaccgc agggtgacgt ggaggccatg 420

tatcccgcgc taccccccta ctccaactgc ggcgacctct actcagagcc cgtgtctttc 480

cacgaccccc agggcaatcc cgggctcgcc tattcccccc aggattacca atcggccaag 540

ccggcgttgg acagcaatct cttccccatg attcctgact acaacctcta ccaccacccc 600

aacgacatgg gctccattcc ggagcacaag cccttccagg gcatggaccc catccgggtc 660

aacccgcccc ctattacccc tctggagacc atcaaggcat tcaaagacaa gcagatccac 720

ccgggctttg gcagcctgcc ccagccgccg ctcaccctca agcccatccg gccccgcaag 780

taccccaacc ggcctagcaa gacaccgctc cacgaacggc cccacgcgtg cccggccgag 840

ggctgcgacc gccgtttcag ccgttcggac gagctgaccc ggcacctgcg catccacacg 900

ggccacaagc ccttccagtg ccggatctgc atgcggagct tcagccgcag cgaccacctc 960

accactcaca tccgcactca tacgggcgag aagcccttg cctgcgagtt ctgcgggcgc 1020

aagtttgcgc gcagcgacga gcgcaagcgc cacgccaaga tccacctcaa gcaaaaggag 1080

aagaaggcgg agaagggcgg tgcaccctct gcatcctcgg cgccccccgt gtcgctggcc 1140

cccgtggtca ccacctgcgc c 1161

<210> 48
<211> 387
<212> PRT
<213> Homo sapiens

<400> 48
Met Thr Gly Lys Leu Ala Glu Lys Leu Pro Val Thr Met Ser Ser Leu
1 5 10 15

Leu Asn Gln Leu Pro Asp Asn Leu Tyr Pro Glu Glu Ile Pro Ser Ala
20 25 30

Leu Asn Leu Phe Ser Gly Ser Ser Asp Ser Val Val His Tyr Asn Gln
35 40 45

Met Ala Thr Glu Asn Val Met Asp Ile Gly Leu Thr Asn Glu Lys Pro
50 55 60

Asn Pro Glu Leu Ser Tyr Ser Gly Ser Phe Gln Pro Ala Pro Gly Asn
65 70 75 80

```
Lys Thr Val Thr Tyr Leu Gly Lys Phe Ala Phe Asp Ser Pro Ser Asn
                85                  90                  95

Trp Cys Gln Asp Asn Ile Ile Ser Leu Met Ser Ala Gly Ile Leu Gly
            100                 105                 110

Val Pro Pro Ala Ser Gly Ala Leu Ser Thr Gln Thr Ser Thr Ala Ser
        115                 120                 125

Met Val Gln Pro Pro Gln Gly Asp Val Glu Ala Met Tyr Pro Ala Leu
    130                 135                 140

Pro Pro Tyr Ser Asn Cys Gly Asp Leu Tyr Ser Glu Pro Val Ser Phe
145                 150                 155                 160

His Asp Pro Gln Gly Asn Pro Gly Leu Ala Tyr Ser Pro Gln Asp Tyr
                165                 170                 175

Gln Ser Ala Lys Pro Ala Leu Asp Ser Asn Leu Phe Pro Met Ile Pro
            180                 185                 190

Asp Tyr Asn Leu Tyr His His Pro Asn Asp Met Gly Ser Ile Pro Glu
        195                 200                 205

His Lys Pro Phe Gln Gly Met Asp Pro Ile Arg Val Asn Pro Pro Pro
    210                 215                 220

Ile Thr Pro Leu Glu Thr Ile Lys Ala Phe Lys Asp Lys Gln Ile His
225                 230                 235                 240

Pro Gly Phe Gly Ser Leu Pro Gln Pro Pro Leu Thr Leu Lys Pro Ile
                245                 250                 255

Arg Pro Arg Lys Tyr Pro Asn Arg Pro Ser Lys Thr Pro Leu His Glu
            260                 265                 270

Arg Pro His Ala Cys Pro Ala Glu Gly Cys Asp Arg Arg Phe Ser Arg
        275                 280                 285

Ser Asp Glu Leu Thr Arg His Leu Arg Ile His Thr Gly His Lys Pro
    290                 295                 300
```

Phe Gln Cys Arg Ile Cys Met Arg Ser Phe Ser Arg Ser Asp His Leu
305 310 315 320

Thr Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys Glu
325 330 335

Phe Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His Ala
340 345 350

Lys Ile His Leu Lys Gln Lys Glu Lys Lys Ala Glu Lys Gly Gly Ala
355 360 365

Pro Ser Ala Ser Ser Ala Pro Pro Val Ser Leu Ala Pro Val Val Thr
370 375 380

Thr Cys Ala
385

<210> 49
<211> 2850
<212> DNA
<213> Homo sapiens

<400> 49
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ctgctcgccg cggcgctact ggccgtgtcg gacgcactcg ggcgcccctc cgaggaggac 120

gaggagctag tggtgccgga gctggagcgc gccccgggac acgggaccac gcgcctccgc 180

ctgcacgcct ttgaccagca gctggatctg gagctgcggc ccgacagcag ctttttggcg 240

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atccagccgc tgcccgccgc cagcgagcgc ctcgccaccg ccgccccagg ggagaagccg 480

ccggcaccac tacagttcca cctcctgcgg cggaatcggc agggcgacgt cggcggcacg 540

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gaagggactg agggcgagga cgaaggggct cagtggtcgc cgcaggaccc ggcactgcaa 660

ggcgtaggac agcccacagg aactggaagc ataagaaaga agcgatttgt gtccagtcac 720

cgctatgtgg aaaccatgct tgtggcagac cagtcgatgg cagaattcca cggcagtggt 780

ctaaagcatt accttctcac gttgttttcg gtggcagcca gattgtacaa acaccccagc 840

attcgtaatt cagttagcct ggtggtggtg aagatcttgg tcatccacga tgaacagaag 900

gggccggaag tgacctccaa tgctgccctc actctgcgga acttttgcaa ctggcagaag 960

cagcacaacc cacccagtga ccgggatgca gagcactatg acacagcaat tcttttcacc 1020

agacaggact tgtgtgggtc ccagacatgt gatactcttg ggatggctga tgttggaact 1080

gtgtgtgatc cgagcagaag ctgctccgtc atagaagatg atggtttaca agctgccttc 1140

accacagccc atgaattagg ccacgtgttt aacatgccac atgatgatgc aaagcagtgt 1200

gccagcctta atggtgtgaa ccaggattcc cacatgatgg cgtcaatgct ttccaacctg 1260

gaccacagcc agccttggtc tccttgcagt gcctacatga ttacatcatt tctggataat 1320

ggtcatgggg aatgtttgat ggacaagcct cagaatccca tacagctccc aggcgatctc 1380

cctggcacct cgtacgatgc caaccggcag tgccagttta catttgggga ggactccaaa 1440

cactgccccg atgcagccag cacatgtagc accttgtggt gtaccggcac ctctggtggg 1500

gtgctggtgt gtcaaaccaa acacttcccg tgggcggatg gcaccagctg tggagaaggg 1560

aaatggtgta tcaacggcaa gtgtgtgaac aaaaccgaca gaaagcattt tgatacgcct 1620

tttcatggaa gctggggaat gtgggggcct tggggagact gttcgagaac gtgcggtgga 1680

ggagtccagt acacgatgag ggaatgtgac aacccagtcc caaagaatgg agggaagtac 1740

tgtgaaggca aacgagtgcg ctacagatcc tgtaaccttg aggactgtcc agacaataat 1800

ggaaaaacct ttagagagga acaatgtgaa gcacacaacg agttttcaaa agcttccttt 1860

gggagtgggc ctgcggtgga atggattccc aagtacgctg gcgtctcacc aaaggacagg 1920

tgcaagctca tctgccaagc caaaggcatt ggctacttct tcgttttgca gcccaaggtt 1980

gtagatggta ctccatgtag cccagattcc acctctgtct gtgtgcaagg acagtgtgta 2040

aaagctggtt gtgatcgcat catagactcc aaaaagaagt ttgataaatg tggtgtttgc 2100

gggggaaatg gatctacttg taaaaaaata tcaggatcag ttactagtgc aaaacctgga 2160

tatcatgata tcatcacaat tccaactgga gccaccaaca tcgaagtgaa acagcggaac 2220

cagaggggat ccaggaacaa tggcagcttt cttgccatca aagctgctga tggcacatat 2280

attcttaatg gtgactacac tttgtccacc ttagagcaag acattatgta caaaggtgtt 2340

gtcttgaggt acagcggctc ctctgcggca ttggaaagaa ttcgcagctt tagccctctc 2400

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<212> PRT
<213> Homo sapiens

<400> 50

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Pro Thr Leu Leu Leu Leu Ala Ala Ala Leu Leu Ala Val Ser Asp Ala
            20                  25                  30

Leu Gly Arg Pro Ser Glu Glu Asp Glu Glu Leu Val Val Pro Glu Leu
        35                  40                  45

Glu Arg Ala Pro Gly His Gly Thr Thr Arg Leu Arg Leu His Ala Phe
    50                  55                  60

Asp Gln Gln Leu Asp Leu Glu Leu Arg Pro Asp Ser Ser Phe Leu Ala
65                  70                  75                  80

Pro Gly Phe Thr Leu Gln Asn Val Gly Arg Lys Ser Gly Ser Glu Thr
                85                  90                  95

Pro Leu Pro Glu Thr Asp Leu Ala His Cys Phe Tyr Ser Gly Thr Val
            100                 105                 110

Asn Gly Asp Pro Ser Ser Ala Ala Ala Leu Ser Leu Cys Glu Gly Val
        115                 120                 125

Arg Gly Ala Phe Tyr Leu Leu Gly Glu Ala Tyr Phe Ile Gln Pro Leu
    130                 135                 140

Pro Ala Ala Ser Glu Arg Leu Ala Thr Ala Ala Pro Gly Glu Lys Pro
145                 150                 155                 160
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Pro Ala Pro Leu Gln Phe His Leu Leu Arg Arg Asn Arg Gln Gly Asp
                165                 170                 175

Val Gly Gly Thr Cys Gly Val Val Asp Asp Glu Pro Arg Pro Thr Gly
            180                 185                 190

Lys Ala Glu Thr Glu Asp Glu Asp Glu Gly Thr Glu Gly Glu Asp Glu
        195                 200                 205

Gly Ala Gln Trp Ser Pro Gln Asp Pro Ala Leu Gln Gly Val Gly Gln
    210                 215                 220

Pro Thr Gly Thr Gly Ser Ile Arg Lys Lys Arg Phe Val Ser Ser His
225                 230                 235                 240

Arg Tyr Val Glu Thr Met Leu Val Ala Asp Gln Ser Met Ala Glu Phe
                245                 250                 255

His Gly Ser Gly Leu Lys His Tyr Leu Leu Thr Leu Phe Ser Val Ala
            260                 265                 270

Ala Arg Leu Tyr Lys His Pro Ser Ile Arg Asn Ser Val Ser Leu Val
        275                 280                 285

Val Val Lys Ile Leu Val Ile His Asp Glu Gln Lys Gly Pro Glu Val
    290                 295                 300

Thr Ser Asn Ala Ala Leu Thr Leu Arg Asn Phe Cys Asn Trp Gln Lys
305                 310                 315                 320

Gln His Asn Pro Pro Ser Asp Arg Asp Ala Glu His Tyr Asp Thr Ala
                325                 330                 335

Ile Leu Phe Thr Arg Gln Asp Leu Cys Gly Ser Gln Thr Cys Asp Thr
            340                 345                 350

Leu Gly Met Ala Asp Val Gly Thr Val Cys Asp Pro Ser Arg Ser Cys
        355                 360                 365

Ser Val Ile Glu Asp Asp Gly Leu Gln Ala Ala Phe Thr Thr Ala His
    370                 375                 380

Glu Leu Gly His Val Phe Asn Met Pro His Asp Asp Ala Lys Gln Cys
385                 390                 395                 400
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Ala Ser Leu Asn Gly Val Asn Gln Asp Ser His Met Met Ala Ser Met
405 410 415

Leu Ser Asn Leu Asp His Ser Gln Pro Trp Ser Pro Cys Ser Ala Tyr
420 425 430

Met Ile Thr Ser Phe Leu Asp Asn Gly His Gly Glu Cys Leu Met Asp
435 440 445

Lys Pro Gln Asn Pro Ile Gln Leu Pro Gly Asp Leu Pro Gly Thr Ser
450 455 460

Tyr Asp Ala Asn Arg Gln Cys Gln Phe Thr Phe Gly Glu Asp Ser Lys
465 470 475 480

His Cys Pro Asp Ala Ala Ser Thr Cys Ser Thr Leu Trp Cys Thr Gly
485 490 495

Thr Ser Gly Gly Val Leu Val Cys Gln Thr Lys His Phe Pro Trp Ala
500 505 510

Asp Gly Thr Ser Cys Gly Glu Gly Lys Trp Cys Ile Asn Gly Lys Cys
515 520 525

Val Asn Lys Thr Asp Arg Lys His Phe Asp Thr Pro Phe His Gly Ser
530 535 540

Trp Gly Met Trp Gly Pro Trp Gly Asp Cys Ser Arg Thr Cys Gly Gly
545 550 555 560

Gly Val Gln Tyr Thr Met Arg Glu Cys Asp Asn Pro Val Pro Lys Asn
565 570 575

Gly Gly Lys Tyr Cys Glu Gly Lys Arg Val Arg Tyr Arg Ser Cys Asn
580 585 590

Leu Glu Asp Cys Pro Asp Asn Asn Gly Lys Thr Phe Arg Glu Glu Gln
595 600 605

Cys Glu Ala His Asn Glu Phe Ser Lys Ala Ser Phe Gly Ser Gly Pro
610 615 620

```
Ala Val Glu Trp Ile Pro Lys Tyr Ala Gly Val Ser Pro Lys Asp Arg
625                 630                 635                 640

Cys Lys Leu Ile Cys Gln Ala Lys Gly Ile Gly Tyr Phe Phe Val Leu
                645                 650                 655

Gln Pro Lys Val Val Asp Gly Thr Pro Cys Ser Pro Asp Ser Thr Ser
            660                 665                 670

Val Cys Val Gln Gly Gln Cys Val Lys Ala Gly Cys Asp Arg Ile Ile
        675                 680                 685

Asp Ser Lys Lys Lys Phe Asp Lys Cys Gly Val Cys Gly Gly Asn Gly
    690                 695                 700

Ser Thr Cys Lys Lys Ile Ser Gly Ser Val Thr Ser Ala Lys Pro Gly
705                 710                 715                 720

Tyr His Asp Ile Ile Thr Ile Pro Thr Gly Ala Thr Asn Ile Glu Val
                725                 730                 735

Lys Gln Arg Asn Gln Arg Gly Ser Arg Asn Asn Gly Ser Phe Leu Ala
            740                 745                 750

Ile Lys Ala Ala Asp Gly Thr Tyr Ile Leu Asn Gly Asp Tyr Thr Leu
        755                 760                 765

Ser Thr Leu Glu Gln Asp Ile Met Tyr Lys Gly Val Val Leu Arg Tyr
    770                 775                 780

Ser Gly Ser Ser Ala Ala Leu Glu Arg Ile Arg Ser Phe Ser Pro Leu
785                 790                 795                 800

Lys Glu Pro Leu Thr Ile Gln Val Leu Thr Val Gly Asn Ala Leu Arg
                805                 810                 815

Pro Lys Ile Lys Tyr Thr Tyr Phe Val Lys Lys Lys Lys Glu Ser Phe
            820                 825                 830

Asn Ala Ile Pro Thr Phe Ser Ala Trp Val Ile Glu Glu Trp Gly Glu
        835                 840                 845

Cys Ser Lys Ser Cys Glu Leu Gly Trp Gln Arg Arg Leu Val Glu Cys
    850                 855                 860
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Arg Asp Ile Asn Gly Gln Pro Ala Ser Glu Cys Ala Lys Glu Val Lys
865 870 875 880

Pro Ala Ser Thr Arg Pro Cys Ala Asp His Pro Cys Pro Gln Trp Gln
885 890 895

Leu Gly Glu Trp Ser Ser Cys Ser Lys Thr Cys Gly Lys Gly Tyr Lys
900 905 910

Lys Arg Ser Leu Lys Cys Leu Ser His Asp Gly Gly Val Leu Ser His
915 920 925

Glu Ser Cys Asp Pro Leu Lys Lys Pro Lys His Phe Ile Asp Phe Cys
930 935 940

Thr Met Ala Glu Cys Ser
945 950

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<211> 705
<212> DNA
<213> Homo sapiens

<400> 51
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gactacggac cctgccgggc cctacttctc cgttactact acgacaggta cacgcagagc 180

tgccgccagt tcctgtacgg gggctgcgag ggcaacgcca acaatttcta cacctgggag 240

gcttgcgacg atgcttgctg gaggatagaa aaagttccca aagtttgccg gctgcaagtg 300

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acatgtgaaa aattcttttc cggtgggtgt caccggaacc ggattgagaa caggtttcca 420

gatgaagcta cttgtatggg cttctgcgca ccaaagaaaa ttccatcatt ttgctacagt 480

ccaaaagatg agggactgtg ctctgccaat gtgactcgct attattttaa tccaagatac 540

agaacctgtg atgctttcac ctatactggc tgtggaggga atgacaataa ctttgttagc 600

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<210> 52
<211> 235
<212> PRT
<213> Homo sapiens

<400> 52

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Met Asp Pro Ala Arg Pro Leu Gly Leu Ser Ile Leu Leu Leu Phe Leu
1               5                  10                  15

Thr Glu Ala Ala Leu Gly Asp Ala Ala Gln Glu Pro Thr Gly Asn Asn
            20                  25                  30

Ala Glu Ile Cys Leu Leu Pro Leu Asp Tyr Gly Pro Cys Arg Ala Leu
        35                  40                  45

Leu Leu Arg Tyr Tyr Tyr Asp Arg Tyr Thr Gln Ser Cys Arg Gln Phe
    50                  55                  60

Leu Tyr Gly Gly Cys Glu Gly Asn Ala Asn Asn Phe Tyr Thr Trp Glu
65                  70                  75                  80

Ala Cys Asp Asp Ala Cys Trp Arg Ile Glu Lys Val Pro Lys Val Cys
                85                  90                  95

Arg Leu Gln Val Ser Val Asp Asp Gln Cys Glu Gly Ser Thr Glu Lys
            100                 105                 110

Tyr Phe Phe Asn Leu Ser Ser Met Thr Cys Glu Lys Phe Phe Ser Gly
        115                 120                 125

Gly Cys His Arg Asn Arg Ile Glu Asn Arg Phe Pro Asp Glu Ala Thr
    130                 135                 140

Cys Met Gly Phe Cys Ala Pro Lys Lys Ile Pro Ser Phe Cys Tyr Ser
145                 150                 155                 160

Pro Lys Asp Glu Gly Leu Cys Ser Ala Asn Val Thr Arg Tyr Tyr Phe
                165                 170                 175

Asn Pro Arg Tyr Arg Thr Cys Asp Ala Phe Thr Tyr Thr Gly Cys Gly
            180                 185                 190

Gly Asn Asp Asn Asn Phe Val Ser Arg Glu Asp Cys Lys Arg Ala Cys
        195                 200                 205
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Ala Lys Ala Leu Lys Lys Lys Lys Met Pro Lys Leu Arg Phe Ala
210 215 220

Ser Arg Ile Arg Lys Ile Arg Lys Lys Gln Phe
225 230 235

<210> 53
<211> 756
<212> DNA
<213> Homo sapiens

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ttcatgcact cagtggggcg ggtcttcagc aagtgggggg agagcccgaa ccggagccgg 660

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ggcaagagac tcatgaccag gggacagctg ccccgg 756

<210> 54
<211> 252
<212> PRT
<213> Homo sapiens

<400> 54
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Leu Leu Phe Pro Ser Met Ala Ser Met Ala Ala Ile Gly Ser Cys Ser
20 25 30

Lys Glu Tyr Arg Val Leu Leu Gly Gln Leu Gln Lys Gln Thr Asp Leu
35 40 45

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Met Gln Asp Thr Ser Arg Leu Leu Asp Pro Tyr Ile Arg Ile Gln Gly
    50                  55                  60

Leu Asp Val Pro Lys Leu Arg Glu His Cys Arg Glu Arg Pro Gly Ala
65                  70                  75                  80

Phe Pro Ser Glu Glu Thr Leu Arg Gly Leu Gly Arg Arg Gly Phe Leu
                85                  90                  95

Gln Thr Leu Asn Ala Thr Leu Gly Cys Val Leu His Arg Leu Ala Asp
            100                 105                 110

Leu Glu Gln Arg Leu Pro Lys Ala Gln Asp Leu Glu Arg Ser Gly Leu
        115                 120                 125

Asn Ile Glu Asp Leu Glu Lys Leu Gln Met Ala Arg Pro Asn Ile Leu
    130                 135                 140

Gly Leu Arg Asn Asn Ile Tyr Cys Met Ala Gln Leu Leu Asp Asn Ser
145                 150                 155                 160

Asp Thr Ala Glu Pro Thr Lys Ala Gly Arg Gly Ala Ser Gln Pro Pro
                165                 170                 175

Thr Pro Thr Pro Ala Ser Asp Ala Phe Gln Arg Lys Leu Glu Gly Cys
            180                 185                 190

Arg Phe Leu His Gly Tyr His Arg Phe Met His Ser Val Gly Arg Val
        195                 200                 205

Phe Ser Lys Trp Gly Glu Ser Pro Asn Arg Ser Arg Arg His Ser Pro
    210                 215                 220

His Gln Ala Leu Arg Lys Gly Val Arg Arg Thr Arg Pro Ser Arg Lys
225                 230                 235                 240

Gly Lys Arg Leu Met Thr Arg Gly Gln Leu Pro Arg
                245                 250
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<210> 55
<211> 6603
<212> DNA
<213> Homo sapiens

<400> 55
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ctgccagaag agaaccagcc agtggtgttt aaccacgttt acaacatcaa gctgccagtg 180

ggatcccagt gttcggtgga tctggagtca gccagtgggg agaaagacct ggcaccgcct 240

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gagctgctga gcagactgga ggagctggag aacctggtgt cttccctgag ggagcaatgt 420

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gca 6603

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<400> 56
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Arg Gln Ser Gly Val Asn Ala Thr Leu Pro Glu Glu Asn Gln Pro Val
        35                  40                  45

Val Phe Asn His Val Tyr Asn Ile Lys Leu Pro Val Gly Ser Gln Cys
    50                  55                  60

Ser Val Asp Leu Glu Ser Ala Ser Gly Glu Lys Asp Leu Ala Pro Pro
65                  70                  75                  80

Ser Glu Pro Ser Glu Ser Phe Gln Glu His Thr Val Asp Gly Glu Asn
                85                  90                  95

Gln Ile Val Phe Thr His Arg Ile Asn Ile Pro Arg Arg Ala Cys Gly
            100                 105                 110

Cys Ala Ala Ala Pro Asp Val Lys Glu Leu Leu Ser Arg Leu Glu Glu
        115                 120                 125

Leu Glu Asn Leu Val Ser Ser Leu Arg Glu Gln Cys Thr Ala Gly Ala
    130                 135                 140

Gly Cys Cys Leu Gln Pro Ala Thr Gly Arg Leu Asp Thr Arg Pro Phe
145                 150                 155                 160

Cys Ser Gly Arg Gly Asn Phe Ser Thr Glu Gly Cys Gly Cys Val Cys
                165                 170                 175

Glu Pro Gly Trp Lys Gly Pro Asn Cys Ser Glu Pro Glu Cys Pro Gly
            180                 185                 190

Asn Cys His Leu Arg Gly Arg Cys Ile Asp Gly Gln Cys Ile Cys Asp
        195                 200                 205

Asp Gly Phe Thr Gly Glu Asp Cys Ser Gln Leu Ala Cys Pro Ser Asp
    210                 215                 220

Cys Asn Asp Gln Gly Lys Cys Val Asn Gly Val Cys Ile Cys Phe Glu
225                 230                 235                 240
```

```
Gly Tyr Ala Gly Ala Asp Cys Ser Arg Glu Ile Cys Pro Val Pro Cys
                245                 250                 255

Ser Glu Glu His Gly Thr Cys Val Asp Gly Leu Cys Val Cys His Asp
            260                 265                 270

Gly Phe Ala Gly Asp Asp Cys Asn Lys Pro Leu Cys Leu Asn Asn Cys
        275                 280                 285

Tyr Asn Arg Gly Arg Cys Val Glu Asn Glu Cys Val Cys Asp Glu Gly
    290                 295                 300

Phe Thr Gly Glu Asp Cys Ser Glu Leu Ile Cys Pro Asn Asp Cys Phe
305                 310                 315                 320

Asp Arg Gly Arg Cys Ile Asn Gly Thr Cys Tyr Cys Glu Glu Gly Phe
                325                 330                 335

Thr Gly Glu Asp Cys Gly Lys Pro Thr Cys Pro His Ala Cys His Thr
            340                 345                 350

Gln Gly Arg Cys Glu Glu Gly Gln Cys Val Cys Asp Glu Gly Phe Ala
        355                 360                 365

Gly Leu Asp Cys Ser Glu Lys Arg Cys Pro Ala Asp Cys His Asn Arg
    370                 375                 380

Gly Arg Cys Val Asp Gly Arg Cys Glu Cys Asp Asp Gly Phe Thr Gly
385                 390                 395                 400

Ala Asp Cys Gly Glu Leu Lys Cys Pro Asn Gly Cys Ser Gly His Gly
                405                 410                 415

Arg Cys Val Asn Gly Gln Cys Val Cys Asp Glu Gly Tyr Thr Gly Glu
            420                 425                 430

Asp Cys Ser Gln Leu Arg Cys Pro Asn Asp Cys His Ser Arg Gly Arg
        435                 440                 445

Cys Val Glu Gly Lys Cys Val Cys Glu Gln Gly Phe Lys Gly Tyr Asp
    450                 455                 460

Cys Ser Asp Met Ser Cys Pro Asn Asp Cys His Gln His Gly Arg Cys
465                 470                 475                 480
```

Val Asn Gly Met Cys Val Cys Asp Asp Gly Tyr Thr Gly Glu Asp Cys
485 490 495

Arg Asp Arg Gln Cys Pro Arg Asp Cys Ser Asn Arg Gly Leu Cys Val
500 505 510

Asp Gly Gln Cys Val Cys Glu Asp Gly Phe Thr Gly Pro Asp Cys Ala
515 520 525

Glu Leu Ser Cys Pro Asn Asp Cys His Gly Gln Gly Arg Cys Val Asn
530 535 540

Gly Gln Cys Val Cys His Glu Gly Phe Met Gly Lys Asp Cys Lys Glu
545 550 555 560

Gln Arg Cys Pro Ser Asp Cys His Gly Gln Gly Arg Cys Val Asp Gly
565 570 575

Gln Cys Ile Cys His Glu Gly Phe Thr Gly Leu Asp Cys Gly Gln His
580 585 590

Ser Cys Pro Ser Asp Cys Asn Asn Leu Gly Gln Cys Val Ser Gly Arg
595 600 605

Cys Ile Cys Asn Glu Gly Tyr Ser Gly Glu Asp Cys Ser Glu Val Ser
610 615 620

Pro Pro Lys Asp Leu Val Val Thr Glu Val Thr Glu Glu Thr Val Asn
625 630 635 640

Leu Ala Trp Asp Asn Glu Met Arg Val Thr Glu Tyr Leu Val Val Tyr
645 650 655

Thr Pro Thr His Glu Gly Gly Leu Glu Met Gln Phe Arg Val Pro Gly
660 665 670

Asp Gln Thr Ser Thr Ile Ile Gln Glu Leu Glu Pro Gly Val Glu Tyr
675 680 685

Phe Ile Arg Val Phe Ala Ile Leu Glu Asn Lys Lys Ser Ile Pro Val
690 695 700

```
Ser Ala Arg Val Ala Thr Tyr Leu Pro Ala Pro Glu Gly Leu Lys Phe
705                 710                 715                 720

Lys Ser Ile Lys Glu Thr Ser Val Glu Val Glu Trp Asp Pro Leu Asp
                725                 730                 735

Ile Ala Phe Glu Thr Trp Glu Ile Ile Phe Arg Asn Met Asn Lys Glu
            740                 745                 750

Asp Glu Gly Glu Ile Thr Lys Ser Leu Arg Arg Pro Glu Thr Ser Tyr
        755                 760                 765

Arg Gln Thr Gly Leu Ala Pro Gly Gln Glu Tyr Glu Ile Ser Leu His
    770                 775                 780

Ile Val Lys Asn Asn Thr Arg Gly Pro Gly Leu Lys Arg Val Thr Thr
785                 790                 795                 800

Thr Arg Leu Asp Ala Pro Ser Gln Ile Glu Val Lys Asp Val Thr Asp
                805                 810                 815

Thr Thr Ala Leu Ile Thr Trp Phe Lys Pro Leu Ala Glu Ile Asp Gly
            820                 825                 830

Ile Glu Leu Thr Tyr Gly Ile Lys Asp Val Pro Gly Asp Arg Thr Thr
        835                 840                 845

Ile Asp Leu Thr Glu Asp Glu Asn Gln Tyr Ser Ile Gly Asn Leu Lys
    850                 855                 860

Pro Asp Thr Glu Tyr Glu Val Ser Leu Ile Ser Arg Arg Gly Asp Met
865                 870                 875                 880

Ser Ser Asn Pro Ala Lys Glu Thr Phe Thr Thr Gly Leu Asp Ala Pro
                885                 890                 895

Arg Asn Leu Arg Arg Val Ser Gln Thr Asp Asn Ser Ile Thr Leu Glu
            900                 905                 910

Trp Arg Asn Gly Lys Ala Ala Ile Asp Ser Tyr Arg Ile Lys Tyr Ala
        915                 920                 925

Pro Ile Ser Gly Gly Asp His Ala Glu Val Asp Val Pro Lys Ser Gln
    930                 935                 940
```

```
Gln Ala Thr Thr Lys Thr Thr Leu Thr Gly Leu Arg Pro Gly Thr Glu
945                 950                 955                 960

Tyr Gly Ile Gly Val Ser Ala Val Lys Glu Asp Lys Glu Ser Asn Pro
                965                 970                 975

Ala Thr Ile Asn Ala Ala Thr Glu Leu Asp Thr Pro Lys Asp Leu Gln
            980                 985                 990

Val Ser Glu Thr Ala Glu Thr Ser  Leu Thr Leu Leu Trp  Lys Thr Pro
        995                 1000                1005

Leu Ala  Lys Phe Asp Arg Tyr  Arg Leu Asn Tyr Ser  Leu Pro Thr
    1010                1015                1020

Gly Gln  Trp Val Gly Val Gln  Leu Pro Arg Asn Thr  Thr Ser Tyr
    1025                1030                1035

Val Leu  Arg Gly Leu Glu Pro  Gly Gln Glu Tyr Asn  Val Leu Leu
    1040                1045                1050

Thr Ala  Glu Lys Gly Arg His  Lys Ser Lys Pro Ala  Arg Val Lys
    1055                1060                1065

Ala Ser  Thr Glu Gln Ala Pro  Glu Leu Glu Asn Leu  Thr Val Thr
    1070                1075                1080

Glu Val  Gly Trp Asp Gly Leu  Arg Leu Asn Trp Thr  Ala Ala Asp
    1085                1090                1095

Gln Ala  Tyr Glu His Phe Ile  Ile Gln Val Gln Glu  Ala Asn Lys
    1100                1105                1110

Val Glu  Ala Ala Arg Asn Leu  Thr Val Pro Gly Ser  Leu Arg Ala
    1115                1120                1125

Val Asp  Ile Pro Gly Leu Lys  Ala Ala Thr Pro Tyr  Thr Val Ser
    1130                1135                1140

Ile Tyr  Gly Val Ile Gln Gly  Tyr Arg Thr Pro Val  Leu Ser Ala
    1145                1150                1155
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Glu Ala  Ser Thr Gly Glu Thr  Pro Asn Leu Gly Glu  Val Val Val
    1160                 1165                 1170

Ala Glu  Val Gly Trp Asp Ala  Leu Lys Leu Asn Trp  Thr Ala Pro
    1175                 1180                 1185

Glu Gly  Ala Tyr Glu Tyr Phe  Phe Ile Gln Val Gln  Glu Ala Asp
    1190                 1195                 1200

Thr Val  Glu Ala Ala Gln Asn  Leu Thr Val Pro Gly  Gly Leu Arg
    1205                 1210                 1215

Ser Thr  Asp Leu Pro Gly Leu  Lys Ala Ala Thr His  Tyr Thr Ile
    1220                 1225                 1230

Thr Ile  Arg Gly Val Thr Gln  Asp Phe Ser Thr Thr  Pro Leu Ser
    1235                 1240                 1245

Val Glu  Val Leu Thr Glu Glu  Val Pro Asp Met Gly  Asn Leu Thr
    1250                 1255                 1260

Val Thr  Glu Val Ser Trp Asp  Ala Leu Arg Leu Asn  Trp Thr Thr
    1265                 1270                 1275

Pro Asp  Gly Thr Tyr Asp Gln  Phe Thr Ile Gln Val  Gln Glu Ala
    1280                 1285                 1290

Asp Gln  Val Glu Glu Ala His  Asn Leu Thr Val Pro  Gly Ser Leu
    1295                 1300                 1305

Arg Ser  Met Glu Ile Pro Gly  Leu Arg Ala Gly Thr  Pro Tyr Thr
    1310                 1315                 1320

Val Thr  Leu His Gly Glu Val  Arg Gly His Ser Thr  Arg Pro Leu
    1325                 1330                 1335

Ala Val  Glu Val Val Thr Glu  Asp Leu Pro Gln Leu  Gly Asp Leu
    1340                 1345                 1350

Ala Val  Ser Glu Val Gly Trp  Asp Gly Leu Arg Leu  Asn Trp Thr
    1355                 1360                 1365

Ala Ala  Asp Asn Ala Tyr Glu  His Phe Val Ile Gln  Val Gln Glu
    1370                 1375                 1380
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Val Asn  Lys Val Glu Ala Ala  Gln Asn Leu Thr Leu  Pro Gly Ser
    1385                 1390                 1395

Leu Arg  Ala Val Asp Ile Pro  Gly Leu Glu Ala Ala  Thr Pro Tyr
    1400                 1405                 1410

Arg Val  Ser Ile Tyr Gly Val  Ile Arg Gly Tyr Arg  Thr Pro Val
    1415                 1420                 1425

Leu Ser  Ala Glu Ala Ser Thr  Ala Lys Glu Pro Glu  Ile Gly Asn
    1430                 1435                 1440

Leu Asn  Val Ser Asp Ile Thr  Pro Glu Ser Phe Asn  Leu Ser Trp
    1445                 1450                 1455

Met Ala  Thr Asp Gly Ile Phe  Glu Thr Phe Thr Ile  Glu Ile Ile
    1460                 1465                 1470

Asp Ser  Asn Arg Leu Leu Glu  Thr Val Glu Tyr Asn  Ile Ser Gly
    1475                 1480                 1485

Ala Glu  Arg Thr Ala His Ile  Ser Gly Leu Pro Pro  Ser Thr Asp
    1490                 1495                 1500

Phe Ile  Val Tyr Leu Ser Gly  Leu Ala Pro Ser Ile  Arg Thr Lys
    1505                 1510                 1515

Thr Ile  Ser Ala Thr Ala Thr  Thr Glu Ala Leu Pro  Leu Leu Glu
    1520                 1525                 1530

Asn Leu  Thr Ile Ser Asp Ile  Asn Pro Tyr Gly Phe  Thr Val Ser
    1535                 1540                 1545

Trp Met  Ala Ser Glu Asn Ala  Phe Asp Ser Phe Leu  Val Thr Val
    1550                 1555                 1560

Val Asp  Ser Gly Lys Leu Leu  Asp Pro Gln Glu Phe  Thr Leu Ser
    1565                 1570                 1575

Gly Thr  Gln Arg Lys Leu Glu  Leu Arg Gly Leu Ile  Thr Gly Ile
    1580  .              1585                 1590
```

Gly Tyr Glu Val Met Val Ser Gly Phe Thr Gln Gly His Gln Thr
1595 1600 1605

Lys Pro Leu Arg Ala Glu Ile Val Thr Glu Ala Glu Pro Glu Val
1610 1615 1620

Asp Asn Leu Leu Val Ser Asp Ala Thr Pro Asp Gly Phe Arg Leu
1625 1630 1635

Ser Trp Thr Ala Asp Glu Gly Val Phe Asp Asn Phe Val Leu Lys
1640 1645 1650

Ile Arg Asp Thr Lys Lys Gln Ser Glu Pro Leu Glu Ile Thr Leu
1655 1660 1665

Leu Ala Pro Glu Arg Thr Arg Asp Leu Thr Gly Leu Arg Glu Ala
1670 1675 1680

Thr Glu Tyr Glu Ile Glu Leu Tyr Gly Ile Ser Lys Gly Arg Arg
1685 1690 1695

Ser Gln Thr Val Ser Ala Ile Ala Thr Thr Ala Met Gly Ser Pro
1700 1705 1710

Lys Glu Val Ile Phe Ser Asp Ile Thr Glu Asn Ser Ala Thr Val
1715 1720 1725

Ser Trp Arg Ala Pro Thr Ala Gln Val Glu Ser Phe Arg Ile Thr
1730 1735 1740

Tyr Val Pro Ile Thr Gly Gly Thr Pro Ser Met Val Thr Val Asp
1745 1750 1755

Gly Thr Lys Thr Gln Thr Arg Leu Val Lys Leu Ile Pro Gly Val
1760 1765 1770

Glu Tyr Leu Val Ser Ile Ile Ala Met Lys Gly Phe Glu Glu Ser
1775 1780 1785

Glu Pro Val Ser Gly Ser Phe Thr Thr Ala Leu Asp Gly Pro Ser
1790 1795 1800

Gly Leu Val Thr Ala Asn Ile Thr Asp Ser Glu Ala Leu Ala Arg
1805 1810 1815

```
Trp Gln  Pro Ala Ile Ala Thr  Val Asp Ser Tyr Val  Ile Ser Tyr
    1820                 1825                 1830

Thr Gly  Glu Lys Val Pro Glu  Ile Thr Arg Thr Val  Ser Gly Asn
    1835                 1840                 1845

Thr Val  Glu Tyr Ala Leu Thr  Asp Leu Glu Pro Ala  Thr Glu Tyr
    1850                 1855                 1860

Thr Leu  Arg Ile Phe Ala Glu  Lys Gly Pro Gln Lys  Ser Ser Thr
    1865                 1870                 1875

Ile Thr  Ala Lys Phe Thr Thr  Asp Leu Asp Ser Pro  Arg Asp Leu
    1880                 1885                 1890

Thr Ala  Thr Glu Val Gln Ser  Glu Thr Ala Leu Leu  Thr Trp Arg
    1895                 1900                 1905

Pro Pro  Arg Ala Ser Val Thr  Gly Tyr Leu Leu Val  Tyr Glu Ser
    1910                 1915                 1920

Val Asp  Gly Thr Val Lys Glu  Val Ile Val Gly Pro  Asp Thr Thr
    1925                 1930                 1935

Ser Tyr  Ser Leu Ala Asp Leu  Ser Pro Ser Thr His  Tyr Thr Ala
    1940                 1945                 1950

Lys Ile  Gln Ala Leu Asn Gly  Pro Leu Arg Ser Asn  Met Ile Gln
    1955                 1960                 1965

Thr Ile  Phe Thr Thr Ile Gly  Leu Leu Tyr Pro Phe  Pro Lys Asp
    1970                 1975                 1980

Cys Ser  Gln Ala Met Leu Asn  Gly Asp Thr Thr Ser  Gly Leu Tyr
    1985                 1990                 1995

Thr Ile  Tyr Leu Asn Gly Asp  Lys Ala Gln Ala Leu  Glu Val Phe
    2000                 2005                 2010

Cys Asp  Met Thr Ser Asp Gly  Gly Gly Trp Ile Val  Phe Leu Arg
    2015                 2020                 2025
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Arg Lys Asn Gly Arg Glu Asn Phe Tyr Gln Asn Trp Lys Ala Tyr
2030 2035 2040

Ala Ala Gly Phe Gly Asp Arg Arg Glu Glu Phe Trp Leu Gly Leu
2045 2050 2055

Asp Asn Leu Asn Lys Ile Thr Ala Gln Gly Gln Tyr Glu Leu Arg
2060 2065 2070

Val Asp Leu Arg Asp His Gly Glu Thr Ala Phe Ala Val Tyr Asp
2075 2080 2085

Lys Phe Ser Val Gly Asp Ala Lys Thr Arg Tyr Lys Leu Lys Val
2090 2095 2100

Glu Gly Tyr Ser Gly Thr Ala Gly Asp Ser Met Ala Tyr His Asn
2105 2110 2115

Gly Arg Ser Phe Ser Thr Phe Asp Lys Asp Thr Asp Ser Ala Ile
2120 2125 2130

Thr Asn Cys Ala Leu Ser Tyr Lys Gly Ala Phe Trp Tyr Arg Asn
2135 2140 2145

Cys His Arg Val Asn Leu Met Gly Arg Tyr Gly Asp Asn Asn His
2150 2155 2160

Ser Gln Gly Val Asn Trp Phe His Trp Lys Gly His Glu His Ser
2165 2170 2175

Ile Gln Phe Ala Glu Met Lys Leu Arg Pro Ser Asn Phe Arg Asn
2180 2185 2190

Leu Glu Gly Arg Arg Lys Arg Ala
2195 2200

<210> 57
<211> 1134
<212> DNA
<213> Homo sapiens

<400> 57
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cattaccagt acgtggggaa gttggcgggc aggctgaagg aggcctccga gggcagcacg 120

ctcaccaccg tgctcttctt ggtcatctgc agcttcatcg tcttggagaa cctgatggtt 180

ttgattgcca tctggaaaaa caataaattt cacaaccgca tgtacttttt cattggcaac 240

ctggctctct gcgacctgct ggccggcatc gcttacaagg tcaacattct gatgtctggc 300

aagaagacgt tcagcctgtc tcccacggtc tggttcctca gggagggcag tatgttcgtg 360

gcccttgggg cgtccacctg cagcttactg gccatcgcca tcgagcggca cttgacaatg 420

atcaaaatga ggccttacga cgccaacaag aggcaccgcg tcttcctcct gatcgggatg 480

tgctggctca ttgccttcac gctgggcgcc ctgcccattc tgggctggaa ctgcctgcac 540

aatctccctg actgctctac catcctgccc ctctactcca agaagtacat tgccttctgc 600

atcagcatct tcacggccat cctggtgacc atcgtgatcc tctacgcacg catctacttc 660

ctggtgaagt ccagcagccg taaggtggcc aaccacaaca actcggagcg gtccatggca 720

ctgctgcgga ccgtggtgat tgtggtgagc gtgttcatcg cctgctggtc cccactcttc 780

atcctcttcc tcattgatgt ggcctgcagg gtgcaggcgt gccccatcct cttcaaggct 840

cagtggttca tcgtgttggc tgtgctcaac tccgccatga acccggtcat ctacacgctg 900

gccagcaagg agatgcggcg ggccttcttc cgtctggtct gcaactgcct ggtcagggga 960

cgggggccc gcgcctcacc catccagcct gcgctcgacc caagcagaag taaatcaagc 1020

agcagcaaca atagcagcca ctctccgaag gtcaaggaag acctgcccca cacagccccc 1080

tcatcctgca tcatggacaa gaacgcagca cttcagaatg ggatcttctg caac 1134

<210> 58
<211> 378
<212> PRT
<213> Homo sapiens

<400> 58
Met Ala Thr Ala Leu Pro Pro Arg Leu Gln Pro Val Arg Gly Asn Glu
1 5 10 15

Thr Leu Arg Glu His Tyr Gln Tyr Val Gly Lys Leu Ala Gly Arg Leu
20 25 30

Lys Glu Ala Ser Glu Gly Ser Thr Leu Thr Thr Val Leu Phe Leu Val
35 40 45

Ile Cys Ser Phe Ile Val Leu Glu Asn Leu Met Val Leu Ile Ala Ile
50 55 60

Trp Lys Asn Asn Lys Phe His Asn Arg Met Tyr Phe Phe Ile Gly Asn

65 70 75 80

Leu Ala Leu Cys Asp Leu Leu Ala Gly Ile Ala Tyr Lys Val Asn Ile
85 90 95

Leu Met Ser Gly Lys Lys Thr Phe Ser Leu Ser Pro Thr Val Trp Phe
100 105 110

Leu Arg Glu Gly Ser Met Phe Val Ala Leu Gly Ala Ser Thr Cys Ser
115 120 125

Leu Leu Ala Ile Ala Ile Glu Arg His Leu Thr Met Ile Lys Met Arg
130 135 140

Pro Tyr Asp Ala Asn Lys Arg His Arg Val Phe Leu Leu Ile Gly Met
145 150 155 160

Cys Trp Leu Ile Ala Phe Thr Leu Gly Ala Leu Pro Ile Leu Gly Trp
165 170 175

Asn Cys Leu His Asn Leu Pro Asp Cys Ser Thr Ile Leu Pro Leu Tyr
180 185 190

Ser Lys Lys Tyr Ile Ala Phe Cys Ile Ser Ile Phe Thr Ala Ile Leu
195 200 205

Val Thr Ile Val Ile Leu Tyr Ala Arg Ile Tyr Phe Leu Val Lys Ser
210 215 220

Ser Ser Arg Lys Val Ala Asn His Asn Asn Ser Glu Arg Ser Met Ala
225 230 235 240

Leu Leu Arg Thr Val Val Ile Val Val Ser Val Phe Ile Ala Cys Trp
245 250 255

Ser Pro Leu Phe Ile Leu Phe Leu Ile Asp Val Ala Cys Arg Val Gln
260 265 270

Ala Cys Pro Ile Leu Phe Lys Ala Gln Trp Phe Ile Val Leu Ala Val
275 280 285

Leu Asn Ser Ala Met Asn Pro Val Ile Tyr Thr Leu Ala Ser Lys Glu
290 295 300

Met Arg Arg Ala Phe Phe Arg Leu Val Cys Asn Cys Leu Val Arg Gly
305 310 315 320

Arg Gly Ala Arg Ala Ser Pro Ile Gln Pro Ala Leu Asp Pro Ser Arg
325 330 335

Ser Lys Ser Ser Ser Ser Asn Asn Ser Ser His Ser Pro Lys Val Lys
340 345 350

Glu Asp Leu Pro His Thr Ala Pro Ser Ser Cys Ile Met Asp Lys Asn
355 360 365

Ala Ala Leu Gln Asn Gly Ile Phe Cys Asn
370 375

<210> 59
<211> 1152
<212> DNA
<213> Homo sapiens

<400> 59
atggcagccc agaatggaaa caccagtttc acacccaact ttaatccacc ccaagaccat 60

gcctcctccc tctcctttaa cttcagttat ggtgattatg acctccctat ggatgaggat 120

gaggacatga ccaagacccg gaccttcttc gcagccaaga tcgtcattgg cattgcactg 180

gcaggcatca tgctggtctg cggcatcggt aactttgtct ttatcgctgc cctcacccgc 240

tataagaagt tgcgcaacct caccaatctg ctcattgcca acctggccat ctccgacttc 300

ctggtggcca tcatctgctg ccccttcgag atggactact acgtggtacg gcagctctcc 360

tgggagcatg gccacgtgct ctgtgcctcc gtcaactacc tgcgcaccgt ctccctctac 420

gtctccacca atgccttgct ggccattgcc attgacagat atctcgccat cgttcacccc 480

ttgaaaccac ggatgaatta tcaaacggcc tccttcctga tcgccttggt ctggatggtg 540

tccattctca ttgccatccc atcggcttac tttgcaacag aaacggtcct ctttattgtc 600

aagagccagg agaagatctt ctgtggccag atctggcctg tggatcagca gctctactac 660

aagtcctact tcctcttcat ctttggtgtc gagttcgtgg gccctgtggt caccatgacc 720

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ttccccactg tgttcgtgaa ggaaaagcac tacctcactg ccttctacgt ggtcgagtgc 960

atcgccatga gcaacagcat gatcaacacc gtgtgcttcg tgacggtcaa gaacaacacc 1020

atgaagtact tcaagaagat gatgctgctg cactggcgtc cctcccagcg ggggagcaag 1080

tccagtgctg accttgacct cagaaccaac ggggtgccca ccacagaaga ggtggactgt 1140

atcaggctga ag 1152

<210> 60
<211> 384
<212> PRT
<213> Homo sapiens

<400> 60
Met Ala Ala Gln Asn Gly Asn Thr Ser Phe Thr Pro Asn Phe Asn Pro
1 5 10 15

Pro Gln Asp His Ala Ser Ser Leu Ser Phe Asn Phe Ser Tyr Gly Asp
20 25 30

Tyr Asp Leu Pro Met Asp Glu Asp Glu Asp Met Thr Lys Thr Arg Thr
35 40 45

Phe Phe Ala Ala Lys Ile Val Ile Gly Ile Ala Leu Ala Gly Ile Met
50 55 60

Leu Val Cys Gly Ile Gly Asn Phe Val Phe Ile Ala Ala Leu Thr Arg
65 70 75 80

Tyr Lys Lys Leu Arg Asn Leu Thr Asn Leu Leu Ile Ala Asn Leu Ala
85 90 95

Ile Ser Asp Phe Leu Val Ala Ile Ile Cys Cys Pro Phe Glu Met Asp
100 105 110

Tyr Tyr Val Val Arg Gln Leu Ser Trp Glu His Gly His Val Leu Cys
115 120 125

Ala Ser Val Asn Tyr Leu Arg Thr Val Ser Leu Tyr Val Ser Thr Asn
130 135 140

Ala Leu Leu Ala Ile Ala Ile Asp Arg Tyr Leu Ala Ile Val His Pro
145 150 155 160

Leu Lys Pro Arg Met Asn Tyr Gln Thr Ala Ser Phe Leu Ile Ala Leu
165 170 175

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Val Trp Met Val Ser Ile Leu Ile Ala Ile Pro Ser Ala Tyr Phe Ala
            180                 185                 190

Thr Glu Thr Val Leu Phe Ile Val Lys Ser Gln Glu Lys Ile Phe Cys
        195                 200                 205

Gly Gln Ile Trp Pro Val Asp Gln Gln Leu Tyr Tyr Lys Ser Tyr Phe
    210                 215                 220

Leu Phe Ile Phe Gly Val Glu Phe Val Gly Pro Val Val Thr Met Thr
225                 230                 235                 240

Leu Cys Tyr Ala Arg Ile Ser Arg Glu Leu Trp Phe Lys Ala Val Pro
                245                 250                 255

Gly Phe Gln Thr Glu Gln Ile Arg Lys Arg Leu Arg Cys Arg Arg Lys
            260                 265                 270

Thr Val Leu Val Leu Met Cys Ile Leu Thr Ala Tyr Val Leu Cys Trp
        275                 280                 285

Ala Pro Phe Tyr Gly Phe Thr Ile Val Arg Asp Phe Phe Pro Thr Val
    290                 295                 300

Phe Val Lys Glu Lys His Tyr Leu Thr Ala Phe Tyr Val Val Glu Cys
305                 310                 315                 320

Ile Ala Met Ser Asn Ser Met Ile Asn Thr Val Cys Phe Val Thr Val
                325                 330                 335

Lys Asn Asn Thr Met Lys Tyr Phe Lys Lys Met Met Leu Leu His Trp
            340                 345                 350

Arg Pro Ser Gln Arg Gly Ser Lys Ser Ser Ala Asp Leu Asp Leu Arg
        355                 360                 365

Thr Asn Gly Val Pro Thr Thr Glu Glu Val Asp Cys Ile Arg Leu Lys
    370                 375                 380
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<210> 61
<211> 885
<212> DNA
<213> Homo sapiens

<400> 61
atgctgcagg gccctggctc gctgctgctg ctcttcctcg cctcgcactg ctgcctgggc 60

tcggcgcgcg ggctcttcct ctttggccag cccgacttct cctacaagcg cagcaattgc 120

aagcccatcc ctgccaacct gcagctgtgc cacggcatcg aataccagaa catgcggctg 180

cccaacctgc tgggccacga gaccatgaag gaggtgctgg agcaggccgg cgcttggatc 240

ccgctggtca tgaagcagtg ccacccggac accaagaagt tcctgtgctc gctcttcgcc 300

cccgtctgcc tcgatgacct agacgagacc atccagccat gccactcgct ctgcgtgcag 360

gtgaaggacc gctgcgcccc ggtcatgtcc gccttcggct tcccctggcc cgacatgctt 420

gagtgcgacc gtttccccca ggacaacgac ctttgcatcc ccctcgctag cagcgaccac 480

ctcctgccag ccaccgagga agctccaaag gtatgtgaag cctgcaaaaa taaaaatgat 540

gatgacaacg acataatgga aacgctttgt aaaaatgatt ttgcactgaa aataaaagtg 600

aaggagataa cctacatcaa ccgagatacc aaaatcatcc tggagaccaa gagcaagacc 660

atttacaagc tgaacggtgt gtccgaaagg gacctgaaga aatcggtgct gtggctcaaa 720

gacagcttgc agtgcacctg tgaggagatg aacgacatca acgcgcccta tctggtcatg 780

ggacagaaac agggtgggga gctggtgatc acctcggtga agcggtggca gaaggggcag 840

agagagttca agcgcatctc ccgcagcatc cgcaagctgc agtgc 885

<210> 62
<211> 295
<212> PRT
<213> Homo sapiens

<400> 62
Met Leu Gln Gly Pro Gly Ser Leu Leu Leu Leu Phe Leu Ala Ser His
1 5 10 15

Cys Cys Leu Gly Ser Ala Arg Gly Leu Phe Leu Phe Gly Gln Pro Asp
20 25 30

Phe Ser Tyr Lys Arg Ser Asn Cys Lys Pro Ile Pro Ala Asn Leu Gln
35 40 45

Leu Cys His Gly Ile Glu Tyr Gln Asn Met Arg Leu Pro Asn Leu Leu
50 55 60

Gly His Glu Thr Met Lys Glu Val Leu Glu Gln Ala Gly Ala Trp Ile
65 70 75 80

```
Pro Leu Val Met Lys Gln Cys His Pro Asp Thr Lys Lys Phe Leu Cys
                85                  90                  95

Ser Leu Phe Ala Pro Val Cys Leu Asp Asp Leu Asp Glu Thr Ile Gln
            100                 105                 110

Pro Cys His Ser Leu Cys Val Gln Val Lys Asp Arg Cys Ala Pro Val
        115                 120                 125

Met Ser Ala Phe Gly Phe Pro Trp Pro Asp Met Leu Glu Cys Asp Arg
    130                 135                 140

Phe Pro Gln Asp Asn Asp Leu Cys Ile Pro Leu Ala Ser Ser Asp His
145                 150                 155                 160

Leu Leu Pro Ala Thr Glu Glu Ala Pro Lys Val Cys Glu Ala Cys Lys
                165                 170                 175

Asn Lys Asn Asp Asp Asp Asn Asp Ile Met Glu Thr Leu Cys Lys Asn
            180                 185                 190

Asp Phe Ala Leu Lys Ile Lys Val Lys Glu Ile Thr Tyr Ile Asn Arg
        195                 200                 205

Asp Thr Lys Ile Ile Leu Glu Thr Lys Ser Lys Thr Ile Tyr Lys Leu
    210                 215                 220

Asn Gly Val Ser Glu Arg Asp Leu Lys Lys Ser Val Leu Trp Leu Lys
225                 230                 235                 240

Asp Ser Leu Gln Cys Thr Cys Glu Glu Met Asn Asp Ile Asn Ala Pro
                245                 250                 255

Tyr Leu Val Met Gly Gln Lys Gln Gly Gly Glu Leu Val Ile Thr Ser
            260                 265                 270

Val Lys Arg Trp Gln Lys Gly Gln Arg Glu Phe Lys Arg Ile Ser Arg
        275                 280                 285

Ser Ile Arg Lys Leu Gln Cys
    290                 295
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<210> 63
<211> 1011
<212> DNA
<213> Homo sapiens

<400> 63
atggaccaaa atgaacacag tcactgggga ccacatgcaa agggccaatg tgccagcaga 60

tctgagctga gaatcatcct ggtgggcaaa acaggaactg gcaaaagtgc tgcagggaac 120

agcatcctca ggaagcaagc atttgaatcg aagctgggtt cccagacctt gactaagact 180

tgcagcaaaa gtcagggaag ctggggaaat agagagattg tcattattga cacaccagat 240

atgttttctt ggaaggacca ctgtgaagct ctgtacaaag aggtgcagag gtgctacttg 300

ctgtctgcac caggacccca tgtgctgctc ctggtgactc agctgggccg ctatacctca 360

caggaccagc aggctgcaca gagggtgaag gagatctttg gagaggatgc catgggacac 420

acaattgtcc tctttaccca caaggaagac ctcaatggtg gctccctgat ggattacatg 480

cacgactcag ataacaaagc cctaagcaag ctggtggcag catgtggtgg gcgaatctgt 540

gcctttaata accgtgctga agggagcaat caggatgacc aagtgaagga actaatggac 600

tgtattgagg atctgttgat ggagaaaaat ggtgatcact ataccaatgg gttgtacagc 660

ctaatacaga ggtctaaatg tggacctgtg ggatcagatg aaagagtaaa ggaattcaaa 720

cagagcctta taaagtacat ggaaactcaa agaagttaca cagccttggc tgaagcaaac 780

tgcctaaaag gagccttaat caaaacacaa ctgtgtgttt tattttgtat tcagttgttt 840

ctcagattga taattctgtg gctttgcata ctgcacagca tgtgcaattt gttttgttgc 900

ttactcttta gtatgtgcaa tttattctgc agtttgctgt ttattatacc caaaaagtta 960

atgatatttt tgagaacagt tattagacta gaacgcaaga ctcctaggtt a 1011

<210> 64
<211> 337
<212> PRT
<213> Homo sapiens

<400> 64
Met Asp Gln Asn Glu His Ser His Trp Gly Pro His Ala Lys Gly Gln
1 5 10 15

Cys Ala Ser Arg Ser Glu Leu Arg Ile Ile Leu Val Gly Lys Thr Gly
20 25 30

Thr Gly Lys Ser Ala Ala Gly Asn Ser Ile Leu Arg Lys Gln Ala Phe
35 40 45

```
Glu Ser Lys Leu Gly Ser Gln Thr Leu Thr Lys Thr Cys Ser Lys Ser
    50                  55                  60

Gln Gly Ser Trp Gly Asn Arg Glu Ile Val Ile Ile Asp Thr Pro Asp
65                  70                  75                  80

Met Phe Ser Trp Lys Asp His Cys Glu Ala Leu Tyr Lys Glu Val Gln
                85                  90                  95

Arg Cys Tyr Leu Leu Ser Ala Pro Gly Pro His Val Leu Leu Leu Val
            100                 105                 110

Thr Gln Leu Gly Arg Tyr Thr Ser Gln Asp Gln Gln Ala Ala Gln Arg
        115                 120                 125

Val Lys Glu Ile Phe Gly Glu Asp Ala Met Gly His Thr Ile Val Leu
    130                 135                 140

Phe Thr His Lys Glu Asp Leu Asn Gly Gly Ser Leu Met Asp Tyr Met
145                 150                 155                 160

His Asp Ser Asp Asn Lys Ala Leu Ser Lys Leu Val Ala Ala Cys Gly
                165                 170                 175

Gly Arg Ile Cys Ala Phe Asn Asn Arg Ala Glu Gly Ser Asn Gln Asp
            180                 185                 190

Asp Gln Val Lys Glu Leu Met Asp Cys Ile Glu Asp Leu Leu Met Glu
        195                 200                 205

Lys Asn Gly Asp His Tyr Thr Asn Gly Leu Tyr Ser Leu Ile Gln Arg
    210                 215                 220

Ser Lys Cys Gly Pro Val Gly Ser Asp Glu Arg Val Lys Glu Phe Lys
225                 230                 235                 240

Gln Ser Leu Ile Lys Tyr Met Glu Thr Gln Arg Ser Tyr Thr Ala Leu
                245                 250                 255

Ala Glu Ala Asn Cys Leu Lys Gly Ala Leu Ile Lys Thr Gln Leu Cys
            260                 265                 270
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Val Leu Phe Cys Ile Gln Leu Phe Leu Arg Leu Ile Ile Leu Trp Leu
275 280 285

Cys Ile Leu His Ser Met Cys Asn Leu Phe Cys Cys Leu Leu Phe Ser
290 295 300

Met Cys Asn Leu Phe Cys Ser Leu Leu Phe Ile Ile Pro Lys Lys Leu
305 310 315 320

Met Ile Phe Leu Arg Thr Val Ile Arg Leu Glu Arg Lys Thr Pro Arg
325 330 335

Leu

<210> 65
<211> 1173
<212> DNA
<213> Homo sapiens

<400> 65
atgttcccca atggcaccgc ctcctctcct tcctcctctc ctagccccag cccgggcagc 60

tgcggcgaag gcggcggcag caggggcccc ggggccggcg ctgcggacgg catggaggag 120

ccagggcgaa atgcgtccca gaacgggacc ttgagcgagg gccagggcag cgccatcctg 180

atctctttca tctactccgt ggtgtgcctg gtggggctgt gtgggaactc tatggtcatc 240

tacgtgatcc tgcgctatgc caagatgaag acggccacca acatctacat cctaaatctg 300

gccattgctg atgagctgct catgctcagc gtgcccttcc tagtcacctc cacgttgttg 360

cgccactggc ccttcggtgc gctgctctgc cgcctcgtgc tcagcgtgga cgcggtcaac 420

atgttcacca gcatctactg tctgactgtg ctcagcgtgg accgctacgt ggccgtggtg 480

catcccatca aggcggcccg ctaccgccgg cccaccgtgg ccaaggtagt aaacctgggc 540

gtgtgggtgc tatcgctgct cgtcatcctg cccatcgtgg tcttctctcg caccgcggcc 600

aacagcgacg gcacggtggc ttgcaacatg ctcatgccag agcccgctca acgctggctg 660

gtgggcttcg tgttgtacac atttctcatg ggcttcctgc tgcccgtggg ggctatctgc 720

ctgtgctacg tgctcatcat tgctaagatg cgcatggtgg ccctcaaggc cggctggcag 780

cagcgcaagc gctcggagcg caagatcacc ttaatggtga tgatggtggt gatggtgttt 840

gtcatctgct ggatgccttt ctacgtggtg cagctggtca acgtgtttgc tgagcaggac 900

gacgccacgg tgagtcagct gtcggtcatc ctcggctatg ccaacagctg cgccaacccc 960

atcctctatg gctttctctc agacaacttc aagcgctctt tccaacgcat cctatgcctc 1020

agctggatgg acaacgccgc ggaggagccg gttgactatt acgccaccgc gctcaagagc 1080

cgtgcctaca gtgtggaaga cttccaacct gagaacctgg agtccggcgg cgtcttccgt 1140

aatggcacct gcacgtcccg gatcacgacg ctc 1173

<210> 66
<211> 391
<212> PRT
<213> Homo sapiens

<400> 66

Met	Phe	Pro	Asn	Gly	Thr	Ala	Ser	Ser	Pro	Ser	Ser	Ser	Pro	Ser	Pro
1				5					10					15	
Ser	Pro	Gly	Ser	Cys	Gly	Glu	Gly	Gly	Gly	Ser	Arg	Gly	Pro	Gly	Ala
			20					25					30		
Gly	Ala	Ala	Asp	Gly	Met	Glu	Glu	Pro	Gly	Arg	Asn	Ala	Ser	Gln	Asn
		35					40					45			
Gly	Thr	Leu	Ser	Glu	Gly	Gln	Gly	Ser	Ala	Ile	Leu	Ile	Ser	Phe	Ile
	50					55					60				
Tyr	Ser	Val	Val	Cys	Leu	Val	Gly	Leu	Cys	Gly	Asn	Ser	Met	Val	Ile
65					70					75					80
Tyr	Val	Ile	Leu	Arg	Tyr	Ala	Lys	Met	Lys	Thr	Ala	Thr	Asn	Ile	Tyr
				85					90					95	
Ile	Leu	Asn	Leu	Ala	Ile	Ala	Asp	Glu	Leu	Leu	Met	Leu	Ser	Val	Pro
			100					105					110		
Phe	Leu	Val	Thr	Ser	Thr	Leu	Leu	Arg	His	Trp	Pro	Phe	Gly	Ala	Leu
		115					120					125			
Leu	Cys	Arg	Leu	Val	Leu	Ser	Val	Asp	Ala	Val	Asn	Met	Phe	Thr	Ser
	130					135					140				
Ile	Tyr	Cys	Leu	Thr	Val	Leu	Ser	Val	Asp	Arg	Tyr	Val	Ala	Val	Val
145					150					155					160
His	Pro	Ile	Lys	Ala	Ala	Arg	Tyr	Arg	Arg	Pro	Thr	Val	Ala	Lys	Val
				165					170					175	

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Val Asn Leu Gly Val Trp Val Leu Ser Leu Leu Val Ile Leu Pro Ile
            180                 185                 190

Val Val Phe Ser Arg Thr Ala Ala Asn Ser Asp Gly Thr Val Ala Cys
        195                 200                 205

Asn Met Leu Met Pro Glu Pro Ala Gln Arg Trp Leu Val Gly Phe Val
    210                 215                 220

Leu Tyr Thr Phe Leu Met Gly Phe Leu Leu Pro Val Gly Ala Ile Cys
225                 230                 235                 240

Leu Cys Tyr Val Leu Ile Ile Ala Lys Met Arg Met Val Ala Leu Lys
                245                 250                 255

Ala Gly Trp Gln Gln Arg Lys Arg Ser Glu Arg Lys Ile Thr Leu Met
            260                 265                 270

Val Met Met Val Val Met Val Phe Val Ile Cys Trp Met Pro Phe Tyr
        275                 280                 285

Val Val Gln Leu Val Asn Val Phe Ala Glu Gln Asp Asp Ala Thr Val
    290                 295                 300

Ser Gln Leu Ser Val Ile Leu Gly Tyr Ala Asn Ser Cys Ala Asn Pro
305                 310                 315                 320

Ile Leu Tyr Gly Phe Leu Ser Asp Asn Phe Lys Arg Ser Phe Gln Arg
                325                 330                 335

Ile Leu Cys Leu Ser Trp Met Asp Asn Ala Ala Glu Glu Pro Val Asp
            340                 345                 350

Tyr Tyr Ala Thr Ala Leu Lys Ser Arg Ala Tyr Ser Val Glu Asp Phe
        355                 360                 365

Gln Pro Glu Asn Leu Glu Ser Gly Gly Val Phe Arg Asn Gly Thr Cys
    370                 375                 380

Thr Ser Arg Ile Thr Thr Leu
385                 390
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<210> 67
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 67
tcccttggtc cactcacaga ct 22

<210> 68
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 68
tgtgtaaagt acggagcgaa gttg 24

<210> 69
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 69
tgccttgcac agcctcgcaa tgagc 25

<210> 70
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 70
tgtgaaaggc acagcagtcc cga 23

<210> 71
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 71
tcagcatggg ctgctacaac ggt 23

<210> 72
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 72
ctcaagtctg tttcttcttc 20

<210> 73
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic antigenic peptide

<400> 73
Arg Arg Tyr Lys Ile His Pro Asp Phe Ser Pro Ser Val Lys Gln Cys
1 5 10 15

<210> 74
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> N-methyl anthranilic acid

<220>
<221> MOD_RES
<222> (7)..(7)
<223> Norvaline

<220>
<221> MOD_RES
<222> (8)..(8)
<223> Lys(dinitrophenol)

<220>
<223> C-term amidated

<400> 74
Xaa Pro Lys Pro Leu Ala Xaa Trp Lys
1 5